VOLUME 18 NUMBER 1

ARCHIVES
OF
DERMATOLOGY AND SYPHILOLOGY

EDITORIAL BOARD

WILLIAM ALLEN PUSEY, Chicago
WILLIAM P. CARLETT, Cleveland ... JAY FRANK SCHAMBERG, Philadelphia
MARTIN F. ENGMAN, St. Louis ... GEORGE M. MacKEE, New York
CHARLES J. WHITE, Boston

JULY, 1928

PUBLISHED MONTHLY BY THE AMERICAN MEDICAL ASSOCIATION, 535 NORTH DEARBORN STREET, CHICAGO, ILLINOIS. ANNUAL SUBSCRIPTION, $6.00

Entered as Second-Class Matter, October 16, 1917, at the Postoffice at Chicago, Illinois, under Act of Congress of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized ...

CONTENTS OF THE [illegible]

JUNE, 1920 NUMBER

"Paget's Disease of the Nipple": A Case Cured by Treatment by Roentgen Rays, Radium and Preliminary Total and Early Amputation of the Breast. L. W. Bandler, M.D., with the Collaboration of M. Hay and F. Dike Stone, Boston, Mass.

Actinomycosis: Clinical and Surgical. Hermann Kiss, M.D., New York.

Schamberg's "Progressive Pigmentary Dermatosis" or "Pigmentary Disease of the Skin": Report of a Case. G. W. Stryker, M.D., and Robert H. Boyle, M.D., St. Louis.

Organic Iodine: Its Use in the Diagnosis of Syphilis. Bernard Sachs, M.D., Philadelphia.

Thyroid Tissue and Its Neoplastic Growth: Report of a Case. Harvey R. Gaylord, M.D., Brooklyn.

Progressive and Recurrent Granulomatous Disease (Dermatofibroplasia, pseudosarcoma). Frederick Eugene Sumner, M.D., Edward Anderson, M.D., and Lewis A. Weed, M.D., Chicago.

Comparative Results of Colloidal Gold, Colloidal-Mastic and Colloidal Benzoin Tests of Cerebrospinal Fluid. C. B. Bennett, M.S., Detroit.

The Quantitative Urine Reaction in the Treatment of Syphilis. E. R. Baker, M.D., and J. E. Breedlove, M.D., Washington, D. C.

Copyright, 1920, by the American Medical Association

Hosp. Bib.

CONTENTS OF VOLUME 18

JULY, 1928. NUMBER 1

PAGE

Bonomo's Letter to Redi: An Important Document in the History of Scabies. John E. Lane, M.D., New Haven, Conn. ... 1
Impetigo or Pyodermatitis Neonatorum. Charles B. Reed, M.D., Chicago. ... 26
Microchemical Studies of Arsenic in Arsenical Dermatitis. Earl D. Osborne, M.D., Buffalo ... 37
Basal Squamous Cell Epithelioma. Hamilton Montgomery, M.D., Rochester, Minn. ... 50
Chronic Paronychia. J. H. Swartz, M.D., Boston ... 74
Congenital Syphilis: A Review of One Hundred and Ninety-Two Cases from a Rural Community, with a Comparison of Two Methods of Treatment. R. H. McBride, M.D., Iowa City ... 79
Lymphatic Leukemia of the Skin with Universal Exfoliating Erythroderma. William P. Boardman, M.D., Boston ... 86
Treatment of Microsporon Infection of the Scalp. Eugene Paul Lieberthal, M.D., Chicago ... 97
Asymptomatic Neurosyphilis: V. A Comparison of Early and Late Asymptomatic Neurosyphilis. Joseph Earle Moore, M.D., with the Assistance of Mildred Faupel, A.B., Baltimore ... 99
Irradiation of the Thymus Gland in the Treatment of Psoriasis. Robert C. Jamieson, M.D., Detroit ... 109
Ringworm of the Scalp: Treatment with Thallium Acetate. Clarence A. Earle, M.D., Des Plaines, Ill. ... 119
Allergic Dermatoses. H. H. Hazen, M.D., Washington, D. C. ... 121
The Use of Ephedrine in Controlling Reactions to Arsphenamine. John H. Stokes, M.D., and Mary C. McIntyre, M.D., Philadelphia ... 131
Working Formula of Ruggles' Cream. E. Wood Ruggles, M.D., Rochester, N. Y. ... 136

Abstracts from Current Literature ... 137

Society Transactions:

Brooklyn Dermatological Society ... 146
New York Academy of Medicine, Section on Dermatology and Syphilis ... 154
Philadelphia Dermatological Society ... 162
Manhattan Dermatological Society ... 165
Detroit Dermatological Society ... 168

Directory of Dermatologic Societies ... 172
Index to Current Literature ... 175

AUGUST, 1928. NUMBER 2

Chronic Atrophic Lichenoid Dermatitis (Csillag): So-Called Lichen Albus of Zumbusch. Fred Wise, M.D., New York, and Bedford Shelmire, M.D., Dallas, Texas ... 179
Tattoo and Syphilis. George H. Belote, M.D., Ann Arbor, Mich. ... 200
Local Accidents Following the Intramuscular Administration of Salts of the Heavy Metals: Report of Two Cases of Embolia Cutis Medicamentosa. John A. Gammel, M.D., Cleveland ... 210
Lesions of the Mucous Membranes in Epidermolysis Bullosa: Report of Case. Norman Tobias, M.D., St. Louis ... 224
Multiple Tumors of the Skin Resembling Mycosis Fungoides. Frederick Rehm Schmidt, M.D., Chicago ... 231
Sarcoids and Related Lesions: Report of Seventeen Cases; Review of Recent Literature. W. H. Goeckerman, M.D., Rochester, Minn. ... 237
Standardization of the Trypanocidal Test and of the Trypanocidal Value of Arsphenamine Based on More Than One Hundred Tests. George W. Raiziss and M. Severac, M.D., Philadelphia ... 263

AUGUST—Continued

PAGE

Mycotic Inguinal Lymphadenitis Associated with Superficial Fungus Dermatitis of the Feet: II. Studies in Mycotic Dermatitis. Cleveland White, M.D., Chicago 271
Human Sweat as a Culture Medium for Bacteria: A Preliminary Report. B. Usher, M.D., Montreal 276
Scleroderma-Like Epithelioma. Douglass W. Montgomery, M.D., and George D. Culver, M.D., San Francisco 281
Xeroderma Pigmentosum: Unusual Improvement in One Member of an Affected Family. Edward Foulke Corson, M.D., and Frank Crozer Knowles, M.D., Philadelphia 284
Radium Therapy of Tumors of the Skin at the Curie Institute of the University of Paris. George T. Pack, M.D., Birmingham, Ala. 286
An Efficient Treatment for Varicose Ulcers. Eugene E. Marcovici, M.D., New York 290

Clinical Notes:

Benign Cystic Epithelioma: Report of a Case. F. J. Eichenlaub, Washington, D. C. 291
An Unusual Appendage of the Anal Region in a Mexican Woman. G. P. Lingenfelter, M.D., Denver 293

Editorials:

Tradition in Dermatology 294

News and Comment 295

Abstracts from Current Literature 296

Society Transactions:

Chicago Dermatological Society 304
New York Dermatological Society 315
Philadelphia Dermatological Society 322
Brooklyn Dermatological Society 327

Directory of Dermatologic Societies 332

Index to Current Literature 335

SEPTEMBER, 1928. NUMBER 3

The Functions of the American Dermatological Association. O. H. Foerster, M.D., Milwaukee 339
Xanthoma Multiplex: Report of a Case. D. D. Stetson, M.D., and F. A. Diasio, M.D., New York 348
LI.—Some Biologic Factors in the Study of Cancer, with Special Reference to Their Relationship to Precancerous Lesions of the Skin. Louis H. Jorstad, M.D., St. Louis 351
"Wood Light" in Dermatologic Diagnosis, with Special Reference to Ringworm. D. E. H. Cleveland, M.D., Vancouver, B. C. 368
Bismuth Arsphenamine Sulphonate: A New Synthetic Drug for Intramuscular Use in the Treatment of Syphilis. Paul A. O'Leary, M.D., Rochester, Minn. 372
Syphilis D'Emblée: Report of Two Cases. V. J. Feldman, M.D., Moscow, United Socialist Soviet Republics 380
Lymphogranulomatosis Inguinalis: Report of a Case of Twenty Months' Duration, with Autopsy Observations. John A. Hillsman, M.D., H. F. Wilshusen, M.D., and H. M. Zimmerman, M.D., New Haven, Conn. 383
Dermatosis Papulosa Nigra. Aldo Castellani, M.D., and Charles W. Duval, M.D., New Orleans 393
Porokeratosis (Mibelli): A Report of Its Occurrence in Six Chinese Patients. G. A. M. Hall, M.D., Peking, China 396
An Unusual Ringed Eruption (Granuloma Annulare?). Edward F. Corson, M.D., Philadelphia 415
The Technic of Cistern Puncture (Cisterna Magna). Leo Spiegel, M.D., New York 420
The Relation of Carbohydrate Metabolism to Eczema: An Experimental Study. B. Usher, M.D., Montreal 423

SEPTEMBER—Continued

PAGE

Superficial Yeast Infections of the Glabrous Skin: Further Clinical and Experimental Studies. Cleveland White, M.D., Chicago 429
Abstracts from Current Literature 439
Society Transactions:
Mississippi Valley Dermatological Society 444
Manhattan Dermatological Society 472
Chicago Dermatological Society 477
Book Reviews 491
Directory of Dermatologic Societies 492
Index to Current Literature 495

OCTOBER, 1928. NUMBER 4

Angiokeratoma: A Confused Clinical and Pathologic Picture. Udo J. Wile, M.D., and George H. Belote, M.D., Ann Arbor, Mich. 501
Folliculitis Decalvans et Atrophicans (Little). Lawrence K. McCafferty, M.D., New York 514
Leukoderma: Report of Unusual Case Associated with Lichenification. D. E. H. Cleveland, M.D., Vancouver, B. C. 527
Acanthosis Nigricans. J. H. Swartz, M.D., and E. C. Miller, M.D., Boston .. 534
Experimental Syphilis in Rabbits: I. A Comparative Study of the Kahn and Wassermann Reactions. G. Earle Wakerlin, Ph.D., and O. H. Horrall, M.D., Ph.D., Chicago 539
Diseases of the Skin Among Ex-Service Men. Philip B. Matz, M.D., Washington, D. C. 549
Coccidioidal Granuloma: Specific Allergic Cutaneous Reaction; Experimental and Clinical Investigations. H. P. Jacobson, M.D., Los Angeles 562
A Fungistatic Strain of Bacillus Subtilis Isolated from Normal Toes. Stanley O. Chambers, M.D., and Fred D. Weidman, M.D., Philadelphia 568
Autohemotherapy in the Treatment of Herpes Zoster. B. Barker Beeson, M.D., Chicago 573
Editorial:
Dermatology in the United States as Seen by Professor Bruno Bloch 577
Correspondence:
American Dermatology. Bruno Bloch, M.D., Zurich, Switzerland 578
Obituary:
Walter Booth Adams, M.D. 584
Abstracts from Current Literature 585
Society Transactions:
Brooklyn Dermatological Society 595
New York Academy of Medicine, Section on Dermatology and Syphilis .. 602
New York Dermatological Society 615
St. Louis Dermatological Society 625
Manhattan Dermatological Society 628
Philadelphia Dermatological Society 632
Book Reviews 637
Directory of Dermatologic Societies 639
Index to Current Literature 642

NOVEMBER, 1928. NUMBER 5

The Affinities Between Black Tongue and Trichomycosis. Fred D. Weidman, M.D., Philadelphia 647
The Structure of Fordyce's Disease as Demonstrated by Wax Reconstruction. Stanley O. Chambers, M.D., Los Angeles 666
Carate (Pinta) as Observed in Colombia, South America. Howard Fox, M.D., New York 673
Cryptococcosis Epidermica. Charles J. White, M.D., and J. H. Swartz, M.D., Boston 692
Multiple Miliary Osteomas of the Skin: Report of a Case. J. G. Hopkins, New York 706
Pityriasis Rubra (Hebra). Robert E. Barney, M.D., Cleveland 716

NOVEMBER—Continued

PAGE

Tinea of the Nails as a Source of Reinfection in Tinea of the Feet: Preliminary Report. Charles M. Williams, M.D., New York 730
The Blood Sugar Level in Some of the Common Skin Disorders. J. Edgar Fisher, M.D., Cleveland 732
Hot Baths in Late Syphilis. Merrill W. Hollingsworth, M.D., Los Angeles .. 736
Serologic Discord in Latent and Treated Syphilis: Report of Cases. Adele E. Sheplar, M.D.; Morris A. Lyons, M.D., and Ward J. MacNeal, M.D., New York 742
Obituary:
Lucius Duncan Bulkley, M.D 755
Abstracts from Current Literature 756
Society Transactions:
New York Academy of Medicine, Section on Dermatology and Syphilis 763
Pittsburgh Dermatological Society 775
Brooklyn Dermatological Society 777
Detroit Dermatological Society 780
Chicago Dermatological Society 782
New York Dermatological Society 792
Directory of Dermatologic Societies 802
Index to Current Literature 805

DECEMBER, 1928. NUMBER 6

Bowen's Disease and Paget's Disease of the Nipple: Their Relation to Dyskeratosis. J. Frank Fraser, M.D., New York 809
Comparison of Ringworm Culture Ingredients: II and III. Fred D. Weidman, M.D., and Dorothy Spring, B.A., Philadelphia 829
Cultures of Ringworm Fungi on Sabouraud's Proof Mediums and on Mediums Prepared with American Peptones and Sugars: A Comparative Study. Robert S. Hodges, D.Sc., University, Ala 852
A Pseudomycosis Due to a Coccus: Micrococcus Myceticus. Aldo Castellani, M.D., New Orleans 857
Chrysoderma: A Permanent Gold Staining of the Skin. Jay Frank Schamberg, M.D., Philadelphia 862
Urticaria: III. Experimental Urticaria Factitia. Abraham Walzer, M.D., Brooklyn 868
Liver Diet in Acne Vulgaris and in Furunculosis. Richard L. Sutton, M.D., Kansas City, Mo 887
The Pathogenesis of Trichophytids: The Spontaneous Passage of Formed Elements (Spores) from the Primary Lesion Into the Circulating Blood. Marion B. Sulzberger, New York 891
Miscellany:
Niagarafall vom Kanadischen ufer 902
News and Comment:
New Dermatologic Society 903
Obituary:
Hermann G. Klotz, M.D. 904
Abstracts from Current Literature 906
Society Transactions:
San Francisco Dermatological Society 917
New York Academy of Medicine, Section on Dermatology and Syphilis .. 923
Cleveland Dermatological Society 937
Philadelphia Dermatological Society 951
St. Louis Dermatological Society 958
Manhattan Dermatological Society 965
Brooklyn Dermatological Society 967
Detroit Dermatological Society 969
Chicago Dermatological Society 970
New York Dermatological Society 981
Book Reviews 991
Directory of Dermatologic Societies 992
Index to Current Literature 995
General Index 999

Archives of Dermatology and Syphilology

VOLUME 18 JULY, 1928 NUMBER 1

BONOMO'S LETTER TO REDI

AN IMPORTANT DOCUMENT IN THE HISTORY OF SCABIES

JOHN E. LANE, M.D.
NEW HAVEN, CONN.

The history of scabies is fascinating and its literature voluminous. A recent sketch of the history by Beeson [1] has prompted this note.

The question as to who first discovered and described the itch mite is still a subject of dispute which does not seem likely to be settled in the near future.

It is, however, generally accepted as a fact that the letter of Bonomo to Redi contains the first accurate description of the mite, and it is accompanied by a drawing giving a fairly accurate picture of its appearance.

Almost every one who writes on the history of scabies refers to this letter, but few seem to have seen it, probably because it is so rare that it is difficult to consult. It is a document of so great significance in the history of scabies that it seems worth while to make it accessible by reproducing it in facsimile. The copy of the letter from which this is taken is in the Library of the Surgeon General's office, and Mr. C. G. Toepper, the assistant librarian, located it for me. There are two copies in the British Museum and one in the Bibliothèque Nationale.

The question of the authorship of the letter and that of Cestoni's part in the discovery of the acarus cannot be discussed here.

The abstract of the letter of Bonomo is that by Richard Mead. The abstract is of historical interest, as it is probably the first notice of Bonomo's work to appear in the English medical literature. It was published in the "Philosophical Transactions," [2] and is practically a translation of Bonomo's article from the bottom of the second to the top of the tenth page.

The most important subsequent work on scabies prior to the acceptance by the medical world of the acarus as the cause of scabies was that of Wichman.[3] Wichman referred to Bonomo's letter and copied Mead's reproduction of Bonomo's illustration of the mite for comparison with his own drawings. This illustration from Wichman is reproduced together with a photomicrograph of an acarus to facilitate comparison of the accuracy of the drawings of Bonomo and of Wichman.

1. Beeson, B. Barker: Acarus Scabei: Study of its History, Arch. Dermat. & Syph. **16**:294 (Sept.) 1927.

2. Mead, Richard: An Abstract of a Letter from Dr. Bonomo to Signior Redi Containing some Observations Concerning the Worms of Humane Bodies, Philosophical Tr. **23**:1296 (Jan. and Feb.) 1703.

3. Wichman, Johann E.: Aetiologie der Krätze, Hanover, 1786.

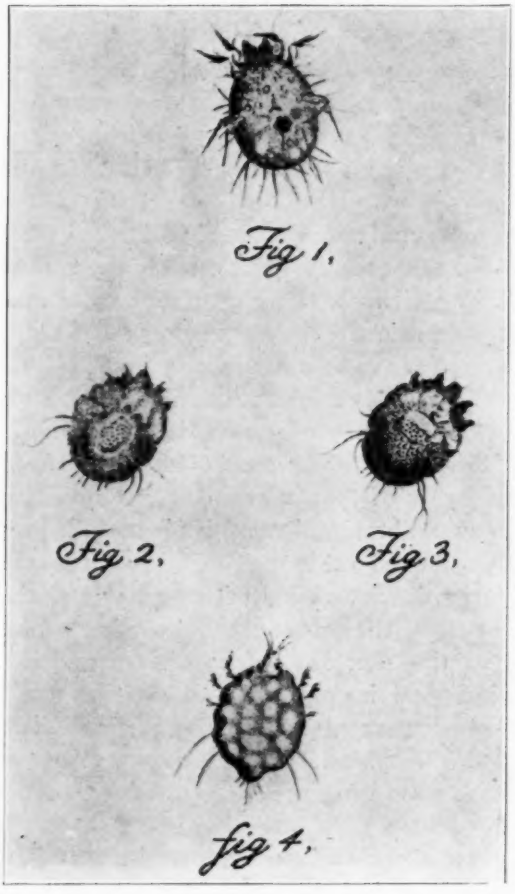

Fig. 1.—Comparison of Wichman's and Bonomo's illustrations of Acarus scabei. Figure 1 is Bonomo's illustration of the flour mite; figures 2 and 3 are Wichman's illustrations of the itch mite and figure 4 is a reproduction of Mead's reproduction of Bonomo's illustrations. From Wichman's work.

Fig. 2.—Photomicrograph of Acarus (female).

OSSERVAZIONI

INTORNO A' PELLICELLI DEL CORPO VMANO

FATTE DAL DOTTOR

GIO: COSIMO BONOMO,

E da lui con altre Oßervazioni ſcritte in una Lettera

ALL'. ILLVSTRISS. SIG.

FRANCESCO REDI.

ex Dono P. Paulo Ant. Acquil. Aurelij Appiani Cabal. adſcrip.

IN FIRENZE, MDCLXXXVII.

Per Piero Matini, all'Inſegna del Lion d'Oro.
CON LIC. DE' SVP.

123312

ILLVSTRIS. SIG. Mo RE

Otto l' amorevole, e dotto Patrocinio di V.S. Illuſtriſs. e con la ſua prudente Direzione io vado giornalmente continuando quelle Oſſervazioni, che Ella ſa, intorno all'Opere maraviglioſe della Natura, o, per dir meglio, di Dio; e particolarmente intorno a quei piccoli Animalucci, che da' Toſcani vengon chiamati Inſetti; ed anticamente dal Divino Poeta *Dante* furono con Greco Vocabolo appellati *Entomata*, allora quando nel Canto decimo del Purgatorio ebbe a dire:

Poi ſiete quaſi Entomata in defetto,
Siccome verme in cui formazion falla.

Mentre dunque tutto attento mi trattengo in queſta curioſa, e dilettevole applicazione, e diſtendone in carta il da me Oſſervato, per poterlo un giorno co-

2

municare al pubblico del Mondo, ſe non con gentilezza di ſtile, almeno con pura, ſemplice, e ſchiettiſſima verità, mi è venuto caſualmente, e per fortuna letto nel famoſo *Vocabolario dell' Accademia della Cruſca*, che i Compilatori di eſſo affermano, che i Pellicelli, de' quali per lo più è gremita internamente la pelle di coloro, che anno la rogna, ſieno altrettanti piccoliſſimi Animaletti; e queſt' eſſe ſono le parole del medeſimo Vocabolario. *Pellicello è un piccoliſſimo Bacolino, il quale ſi genera a' Rognoſi in pelle in pelle, e rodendo cagiona un' acutiſſimo pizzicore.*

Queſt' opinione, come poi ho veduto, fu ſeguitata da *Giuſeppe Laurenzio* nella ſua Amaltea avendovi ſcritto. *Acarus. Teredo. Vermiculus exiguus ſubcutaneus rodens. Pidicello.* E appreſſo alla lettera T. *Teredo. Vermis in ligno naſcens. Caries. Item Acarus rodens carnem ſub cute. Pidicello.*

Per cagione di così fatta lettura mi venne gran curioſità di voler rintracciare, con l'iterata, e reiterata eſperienza, ſe i ſuddetti Pellicelli ſieno veramente Animaletti, e ne favellai di buon propoſito col sig. *Diacinto Ceſtoni*, la di cui diligenza nell' eſperienze a V. S. Illuſtriſs. è molto ben nota; ed Egli coſtantemente mi aſſerì d'aver molte, e molte volte oſſervato, che le Donne a i loro piccoli figliuoli rognoſi traggon fuora colla punta degli ſpilli un non ſo che dalle più minute bollicelle della rogna per ancora non ben mature, e non marcite; e queſto tal non ſo che lo poſano ſull' unghia del dito pollice della mano ſiniſtra; e con l'unghia poi del pollice della mano deſtra

3

ſtra lo ſchiacciano, e nello ſchiacciarlo par loro di ſentire un piccolo ſcoppietto; il che parimente avea veduto farſi con iſcambievolezza di carità trà i Forzati, e trà gli Schiavi rognoſi del Bagno quì di Livorno. Quindi ſoggiunſe, che in verità non ſapeva di certo, che i Pellicelli foſſero Bacherozzoli; ma che ſi poteva prontamente venirne in chiaro, facendone, ſecondo il mio deſiderio, molte prove in qualche Rognoſo per poter oſſervare il sì, ovvero il nò con fondamento di ſicurezza. Trovammo con facilità il Rognoſo, ed interrogatolo, dove egli più acuto, e più grande provaſſe il prurito, ci additò moltiſſime piccole bolluzze, e non ancora marcioſe, le quali volgarmente ſon chiamate Bollicelle acquaiuole. Mi miſi intorno con la punta d'un ſottiliſſimo ſpillo ad una di queſte acquaiuole, e dopo averne fatta uſcire, con lo ſpremerla, una certa acquerugiola, ebbi fortuna di cavarne fuora un minutiſſimo globetto bianco, appena appena viſibile, e queſto globetto oſſervato col Microſcopio, ravviſammo con certezza indubitata, che egli era un minutiſſimo Bacherozzolino, ſomigliante in qualche parte alle Tartarughe; bianco di colore, con qualche foſco d'ombra ſul dorſo, inſieme con alcuni radi, e lunghi peluzzi; ſnello, e agile al moto con ſei piedi; acuto di teſta con due cornicini, o antennette nella punta del grugno; come ſi può vedere nella *Fig. I.* e nella *Fig. III.*

Non ci fermammo a credere, ne ci contentammo di queſta prima veduta, ma ne facemmo molte, e diverſe altre eſperienze in diverſi corpi rognoſi di

4
differente età, e compleſſione, di differente ſeſſo, ed in differenti ſtagioni dell' anno, e ſempre riconoſcemmo la ſteſſa figura de' Pellicelli. E queſti così figurati Animalucci ſi trovano quaſi in tutte le bollicelle acquaiuole. Ho detto quaſi in tutte, perchè alcune volte non ci è ſtato poſſibile il trovarvegli.

Ancorchè ſopra l'eſterna ſuperficie del corpo umano ſia coſa difficiliſſima lo ſcorgergli per cagione della loro minutezza, e del loro colore, ſimile a quello della cuticula; nulladimeno molte volte ne abbiamo veduti camminare eſternamente ſopra di eſſa ſuperficie, e particolarmente nelle articolazioni, e piegature grinzoſe, e ne' minuti ſolcherelli della pelle, dove con l' acuto della teſta cominciano prima ad introdurſi, e tanto razzolano, e tanto ſi agitano, cagionando faſtidioſiſſimo pizzicore, finchè il loro corpo tutto ſia penetrato ſotto la cuticula. Sotto di eſſa cuticula non ci è ſtato difficile il vedere, che vanno facendo ſtraducole da un luogo ad un' altro col rodere, e col mangiare; ed un ſolo di eſſi arriva talvolta a fare più tubercoletti acquaiuoli: E qualche volta ancora ne abbiamo trovati due o tre inſieme, e per lo più molto vicini l'uno all' altro.

Andavamo bramoſamente cercando, ſe queſti Pellicelli faceſſero uova, e dopo molte, e molte, e reiterate ricerche, finalmente la fortuna volle eſſerci favorevole; concioſſiecoſachè avendo poſto un Pellicello ſotto il Microſcopio, acciocchè il sig. Iſach Colonnello ne faceſſe la figura con la ſua gentiliſſima penna, Egli nel diſegnarla vide ſcappar fuori dalle

parti

parti deretane di esso Pellicello un certo minutissimo, e quasi invisibile uovicino bianco, quasi trasparente, e di figura lunghetto a similitudine d' un Pinocchio, come si può vedere nella *Fig. II.* e nella *Fig. IV.*

Da tale avvenimento animati, replicammo con ansietà le ricerche di quest' uova, e ne trovammo in diversi tempi molt' altre; ma non ci si porse mai più la congiuntura di vederle nascere sotto il Microscopio.

Da quest' uova, sig. Redi gentilissimo, parmi, che si possa affermare, che i Pellicelli facciano la loro generazione, come la fanno tutte quante le razze d' Animali, cioè per via di maschio, e di femmina, ancorchè ne al sig. Cestoni, ne a me per ancora ci sia sortito di riconoscere qualche differenza di figura tra i maschi, e le femmine de' suddetti Pellicelli. Forse il caso, o altre più lunghe, e più minute Osservazioni, ovvero migliori Microscopj, come sono quegli inventati in Roma con tanta sua gloria dall' impareggiabile sig. *Giuseppe Campani*, e quegli altri, che dicono aver ultimamente trovati il sig. *Carlantonio Tortoni*, ed il sig. *Marcantonio Cellio*, ci faranno conoscere questa differenza.

Per le sopraddette cose, ben considerate, e senza passione, si potrebbe forse mettere in dubbio l'opinione degli Autori di Medicina nell'assegnare le cagioni della Rogna. Tra la moltitudine degli Antichi, alcuni con Galeno l'anno creduta nascere dall' umore melanconico; il qual'umor melanconico per ancora non si sa ben bene in qual parte del nostro corpo abbia il proprio, e vero domicilio: A Galeno parve, che ade-

6

riſſe Franco Sacchetti antico Poeta Fiorentino allor che nellè ſue Rime ſi compiacque di dire

Di gran maninconia ſarei fuori,
La qual con molta rogna m' ha aſſalito.

Altri con l'Arabo Avicenna la crèderono prodotta dal ſolo ſangue; ed altri dall' Atrabile meſcolata con la Pituita ſalſa

Benchè non ſo ſe queſti Autor fur giuſti,
E ſe diſſero il ver ne' lor Quaderni.

Imperocchè tra gli Scrittori del noſtro preſente ſecolo alcuni con Silvio Delaboe anno poi data la colpa della rogna ad un' acido mordace ſvaporato dal ſangue. Altri col Vanelmonte ad un loro particolare fermento: Altri a' ſali acri, ed irritativi contenuti nella Linfa, o nel Siero, e per i diverſi canali, e andirivieni del noſtro corpo traportati nella Cute. Or tra tante opinioni qual misfatto mai mi ſarebbe, ſe ancor io andaſſi opinando diverſamente da queſti dottiſſimi Vomini? O per iſcherzo, che ſi ſia, o, pure, com' è più facile, per da vero, Io per ora mi ſento inclinato a voler credere, che la Rogna, da' Latini chiamata *ſcabies*, e deſcritta per un male cutaneo, ed appiccaticcio, non ſia altro, che una morſicatura, o roſicatura pruriginoſa, e continua fatta nella cute de' noſtri corpi da queſti ſoprammentovati Bacolini: Onde per le minime aperture di eſſa cute traſudando qualche porzione di Siero, o di Linfa, vengono a farſi le bollicelle acquaiuole, dentro le quali, continuando quei Bacolini la ſolita roſicatura, ſon forzati gli uomini a grattarſi, e nel grattarſi avan-

zan-

7

gandoſi lo ſtruggimento, ed il prurito, rinforzano la faſtidioſaggine dell'opera, e rompono non ſolamente le bollicelle acquaiuole, ma ancora la cute iſteſſa, e qualche minutiſſimo canaluccio di ſangue; il perchè ne avvengono puſtulette, ſcorticature croſtoſe, ed altri ſimili faſtidj.

Dal detto fin quì, sig. Redi, non mi ſembrerebbe totalmente impoſſibile il comprendere, per qual cagione la Rogna ſia un male tanto appiccaticcio: Imperocchè i Pellicelli col ſolo, e ſemplice contatto d' un corpo coll' altro poſſono facilmente paſſare da un corpo all' altro, eſſendo maraviglioſa la velocità di queſti moleſtiſſimi Animalucciacci, i quali non iſtanno ſempremai tutti al lor lavoro intanati ſotto la cuticola, e nelle grotticelle, e paſſaggi cutanej; ma ſe ne trovano altresì alcuni ſopra l' ultima ſuperficie, o cuticola del corpo, pronti prontiſſimi ad attaccarſi ad ogni coſa, che loro ſi accoſti, nella quale per pochi, che arrivino a prendere il domicilio, vi multiplicano grandemente per l' uova, che vi fanno. E non è ancora da maravigliarſi ſe il contagio della Rogna ſi faccia per mezzo di Lenzuoli, di Sciugatoi, di Tovagliolini, di Guanti, e d' altre ſimili robe uſuali ſervite a i Rognoſi, eſſendo che in eſſe robe può rimaner appiccato qualche Pellicello; Ed in verità i Pellicelli vivono fuor de' noſtri corpi fino a due, e tre giorni, come mi è avvenuto di poter oculatamente farne la ſperienza più volte.

Non mi ſembrerebbe anco impoſſibile comprender la cagione del guarir della Rogna per via di la-

8

vande rannoſe, di Bagni, e di Vnzioni compoſte co
ſali, zolfi. vitriuoli, mercurj ſemplici, precipitati, e
ſolimati, e con altre robe di queſta fatta corroſive,
e penetranti; perchè eſſe vagliono infallibilmente ad
ammazzare i Pellicelli intanati anco nelle più ripoſte
loro grotterelle, e laberinti della Cute; il che non
può mai avvenire col grattarſi, ancorchè ſi faccian ſo-
vente ſdruci non piccoli; perchè i Pellicelli ſon di co-
sì dura pelle, che non arrivano così facilmente ad eſ-
ſer offeſi, ed anco per la lor minutezza ad eſſer tro-
vati dall' unghie: Siccome non arrivano ad eſſere of-
feſi da tanti, e tanti medicamenti interni, che da' Me-
dici ſon dati a' Rognoſi per bocca, biſognando ſem-
pre, dopo un lungo uſo di eſſi medicamenti interni, ri-
correr finalmente per neceſſità alle unzioni ſoprad-
dette ſe voglion conſeguire la total guarigione. E ſe
in pratica ſpeſſe volte ſi vede, che eſſendoſi unto un
Rognoſo, e ſembrando in dieci, o dodici giorni gua-
rito, contuttociò in breve la Rogna ſuol tornare a
rifiorir come prima; non è da maravigliarſene, per-
chè l'unguento avrà bensì ammazzati i Pellicelli vi-
venti, ma non avrà guaſte, e corrotte l'uova, depo-
ſitate, per così dire, ne' nidj della Cute, dove elle
poſſon poi naſcere, e far ripullulare il male. Per la
qual coſa alcuni dopo il vederſi guariti continuano
prudentemente per qualche altro giorno di vantaggio
le unzioni, il che tanto più facilmente poſſono eſe-
guire, quanto che le unzioni per la rogna poſſono
manipolarſi gentiliſſime, e di buon' odore, come ap-
punto è quella fatta con Manteca gialla di fior d' A-
ranci,

ranci, o di Roſe incarnate, meſcolata con una conveniente porzioncella di Mercurio precipitato roſſo.

Quì avea penſato di terminare lo ſtrano Paradoſſo di queſta Lettera; ma eſſendomi improvviſamente venuto capriccio di volerlo dare alle Stampe, prego la bontà di V. S. Illuſtriſs. a permettermi, che io ci aggiunga uno abbozzo compendioſo di ſpiegazione per quell' altre poche figure, che ſon delineate in compagnia di quelle del Pellicello.

Nella *Fig. V.* è rappreſentato nella ſua natural grandezza il Tarlo, che abita ordinariamente ne legni duri, e per ſuo nutrimento gli rode. Queſto così fatto Tarlo è generato da quegli Scarafaggi grandi, e neri morati, che in cima al capo anno due corna, o antenne lunghiſſime fatte a nodi, come ſi può vedere nella *Fig. VI.* Da' Contadini Livorneſi ſon chiamati Scarafaggi Peraiuoli, perchè volentieri mangiano le Pere, e per lo più ronzano intorno a' loro alberi, e ad altri di ſimil natura. Quando adunque dallo Scarafaggio maſchio ſono ſtate gallate l' uova alla Scarafaggeſſa femmina, ella ſe ne va a depoſitarle, come in un nido, non ſolamente ſopra le feſſure, e gli ſcrepoli de' groſſi tronchi del legname di già tagliato, e che in qualche parte abbia cominciato a guaſtarſi, e corrompeſi; ma ancora nelle feſſure del legname morticino, ed anco in quelle delle ſcorze de medeſimi alberi verdi, e vegetanti. Da ciaſcuno di queſti mentovati uovicini, in breve tempo, cioè in tre, o quattro giorni al più, naſce un piccolo vermicciuolo, o Tarlo, il quale da principio va rodendo appoco appoco

10
poco ſecondo le piccole ſue forze, e ſecondo il ſuo biſogno, che ſempre con le forze gli va creſcendo; e col rodere ſi fa larghe, e profonde aperture nel legname. Ogni due meſi in circa, e particolarmente la ſtate, ſuol gettar la ſpoglia; e continuando a rodere, va ſempre creſcendo la mole del ſuo corpo, fin che arrivi ad un'anno, e qualche volta a due, e talvolta a tre anni interi, come pur fino a queſto tempo ne ha conſervati vivi più d'uno la diligenza premuroſa del sig. Diacinto Ceſtoni. Ma contuttociò, ſecondo il ſolito, ſi ſuol miſurare il ſuo tempo più lungo, o più breve dal legno più duro, o men duro, che il Tarlo deve conſumare, mentre che ſubito, che egli ſia arrivato alla ſua naturale, e conveniente grandezza ſi trasforma in Criſalide, e ſtando immobile in queſta figura intorno a venti giorni, finalmente di nuovo ſi ſpoglia, ed uſcendo dalle ſpoglie, ſi fa vedere alato, come ſtà nell' accennata *Fig. VI.*

Nella *Fig. VII.* è delineato il verme o Tarlo, che poi ſi trasforma in Scarafaggio Pillulario, ed in Scarafaggio Stercorario ſiccome nella *Fig. VIII.* è rappreſentato eſſo Scarafaggio Stercorario, e nella *Fig. IX.* lo Scarafaggio Pillulario.

Moltiſſime ſono le razze degli altri Tarli, che ſtanno ne' legni, nelle radiche, ed in altre ſimili coſe. E tutti, come i ſopraddetti, diventano a ſuo tempo Scarafaggi volanti. Tra queſti ho trovato vero quello, che l'anno paſſato, V. S. Illuſtriſs. mi diſſe, di eſſerſi certificata, che in capo ad un'anno diventano ancor eſſi Scarafaggi volanti, quei Bachi grandi, roſſi, e peloſi,

11

pelosi, che si trovano talvolta a rodere sotterra le barbe delle Bietole rosse, e di capi d'Aglio, de' quali Bachi ella fece menzione nel suo *Libro della Generazione degl' Insetti*: E che si cangiano altresì in Scarafaggi quei vermi, che si trovano nelle Nocciuole fresche, mentre che elle stanno sull' albero, o che di poco sono state colte dall' albero, e non ancora sgusciate, del che Ella non si era ancora certificata, quando stampò il suddetto suo *Libro della Generazione degl' Insetti*. Il verme suddetto è figurato al *num.* 10. e lo Scarafaggio al *num.* 11. ed al *num.* 12. Ho detto quei vermi, che si trovano nelle Nocciuole fresche non per ancora sgusciate; perchè i vermi, che nascono nelle Nocciuole secche sgusciate, nelle Mandorle, ne' Pinocchi, ne' semi di Popone, di Cocomero, di Zucca, e d altri simili semi oleaginosi, sono vermi d un altra razza, cioè della razza de' Bruchi, e de' vermi da seta. Imperocchè certe p ccole farfallette depositano in quei semi oleaginosi le loro uova; dall' uova nascono i Bruchi, i quali al tempo determinato se ne fuggon via, e se non possono fuggirsene, fanno quivi il loro piccolo bozzoletto di seta: E se possono fuggirsene vanno a nascondersi come, e dove a loro insegna la naturale inclinazione, e quivi pure si fabbricano i bozzoli, da' quali in due, e talvolta tre settimane scappan fuora le minute farfallette, che tornano a depositare le nuove loro uova su quei mentovati frutti oleaginosi: E rinnuovano la generazione due, ed anco tre volte l' anno, secondo le stagioni, che corrono: E da queste bestiuole avviene, che le frutte oleaginose

12
ginoſe ſi guaſtino, e tarlino, e non perchè elle ſieno invecchiate, come il volgo ſi crede. Io ho potuto conſervarle molti anni ſane, e ſalve ne' vaſi di vetro, e di terra ben ſerrati, ſenza che mai mai vi ſieno intarlate, ſe ve le ho ripoſte ſubito, che ſono ſtate cavate dal guſcio. E lo ſteſſo è avvenuto al ſig. Diacinto Ceſtoni, il quale di più, col tener la Sciarappa ben cuſtodita, e ſerrata, l' ha mantenuta ſenza verun pericolo di Tarli per dieci, e per dodici anni: E non ſolamente ha conſervata la Sciarappa, ma ancora altre Droghe, come il Mecioacan, la Cina, il Rabarbero, il Rapontico, gli Ermodattili, e tutte l' altre coſe, che nelle ſpezierie ſi adoperano, e che ſono ſuggette all' intarlatura. Ma i Tarli delle Droghe non ſono della razza de' vermi, che guaſtano i frutti oleaginoſi, ma ſono della razza degli Scarafaggi, differenti però nella grandezza, e nella figura.

E gli è però vero, che le Droghe portateci da Paeſi lontani ſi rendono molto difficultoſe a poterle mantenere, per aver paſſato lungo tempo nel viaggio ſenza le dovute diligenze; ne ſi può aver ſicurezza alcuna, che in eſſe non ſieno di già ſtate depoſitate l' uova de' Tarli: Onde a volerſene certificare vi ſi ricerca un' anno; e ſe in queſt' anno, mentre la Droga ſia ſtata ben ſerrata, non ne naſce alcuno animaletto volante, allora vi è certezza più che certa, che ella non tarlerà mai, purchè ſi vada proſeguendo la diligenza nel cuſtodirla. Quello che dico delle Droghe, lo dico altresì de' Canditi, i quali, ſe non ſieno tenuti in buona cuſtodia, vengono guaſti non

ſola-

13

ſolamente da alcuni Tarli, che ſi trasformano poi in quegli Scarafaggi, de' quali moſtrò Ella, o sig. Redi, la figura nel ſuo *Libro della Generazione degl' Inſetti alla Tav. XVII.* ma ancora da certi altri minutiſſimi Bacherelli, che naſcono ancora nel formaggio, come appreſſo dirò.

De' vermi, che naſcono nel formaggio freſco, e come vi naſcano, ed in quali animalucci, o moſcherini volanti ſi trasformino, ne ha V. S. o sig. Franceſco, veridicamente parlato nel ſuddetto ſuo *Libro della Generazione degl' Inſetti*. Ma Ella ſa, che alcuni anni ſono inſieme col sig. Diacinto Ceſtoni, mentre la Corte era quivi in Livorno, ne oſſervammo più volte nel formaggio ſecco un' altra razza differente da' mentovati; e di queſta razza ſe ne vede la figura al *num.* 13. ed al *num.* 14. ſiccome al *num.* 15. quella dell' uovo de' medeſimi Bachi, i quali gli ho rappreſentati come gli ho potuti vedere co' Microſcopj, che preſentemente mi trovo, ed anco un poco ingranditi. La loro figura è un pochetto differente da quella, che l' anno proſſimo paſſato ha data fuora in Roma il sig. Tortoni per oſſervazione del sig. Giuſeppe Teutonico, ma il mio povero Microſcopio non mi moſtra altramente.

In vero non ſi può diſtinguere queſto minutiſſimo Inſetto per la ſua ſomma piccolezza, ſe non col benefizio del Microſcopio, ed i miei non me lo moſtrano ſe non della grandezza d' una lente, o poco più. Egli è bianco, diafano, e quaſi tondeggiante: Ha otto piedi, ed il ſuo capo è aguzzo. Curioſi da vederſi

in lui

14
in lui ſono alcuni, per così dire, radi, e lunghi pungiglioni, de' quali tien guarnito il dorſo a foggia d' un Iſtrice. Queſti pungiglioni ſi ſollevano da eſſo dorſo ben dritti, e intirizziti, mantenendoſi ſempre ugualmente diſtanti come per guardia dell' Animale; e per quanto ho veduto, poſſo credere, che non ſi abbaſſino mai, come ſogliono abbaſſarſi i peli degli altri animali peloſi. Non vi è dunque alcuno, che con l' occhio nudo poſsa diſtinguer bene queſte beſtiuole per animali viventi, ancorchè ſi trovino in tanto, e così gran numero nel formaggio vecchio.

Che meglio conterei ciaſcuna foglia
Quando l Autunno gli Arbori ne ſpoglia.

Ed in eſso formaggio rodendo, e mangiando fanno talvolta le buche così grandi, che ſe ne potrebbe cavar un oncia di eſſi Tarli, che arriverebbono al numero di molti milioni.

Queſti Tarli non iſtanno ſolamente nel formaggio, ma ancora ſopra tutte le frutte dolci, e ſeccate, come fichi, zibibo, uve paſſe, ſuſine, mandorle, pinocchi, ſemi di popone mondi, riſo, ed altre coſe di ſimil genere, infettando ancora i Canditi, le Conſerve, i Cotognati, i Lattuarj, e tutte l'altre Confetture degli Speziali, che ſe non ſono ben tenute ſerrate, e ben cuſtodite, e bene ſpeſſo riviſte, ſervono a' tripudj, e gavazzamenti di queſte beſtiuolucciacce inviſibili, che ſi annidano quaſi ſopra tutto il commeſtibile.

I Caciaiuoli queſta così gran quantità di animalucciacci, non ne ſapendo altro, la chiamano la pol

vere

vere del formaggio, e veramente credono, che ſia polvere. Ed è, o sig. Redi, coſa degna di rifleſſione, che a queſte beſtiuole non ſolo non è punto nocivo il ſommo caldo della ſtate, ma ne meno la più rigoroſa freddura della vernata; e ſempre in tutte le ſtagioni tirano avanti francamente il lor vivere, e la loro infinita multiplicazione: E moltiplicano col ſolito natural modo, col quale multiplicano tutti quanti gli altri animali, cioè coll' unirſi i maſchi alle femmine, e per queſta unione gallate l' uova, e poſcia laſciate dalle femmine in ogni luogo a beneſizio di natura, da quell' uova ne naſcono i piccoli animalucci di quella ſteſsa figura, che conſervano tutto il tempo della lor vita, perchè queſti del formaggio ſecco non ſi traſmutano mai in animali volanti: E quell' uova ſono così minute, che col Microſcopio ſteſſo non è così facile il ravviſarle ſubito: Elle ſono però bianche, e diafane, come le madri, e della figura ſopraccennata al *num.* 15. Ma ne parlerò più diſteſamente a ſuo tempo, quando darò alle ſtampe tutto il da me Oſservato intorno agl' Inſetti, camminando per quella ſtrada, che da V. S. Illuſtriſs. fu negli anni paſsati aperta, e ſpianata con tanta ſua gloria. E non ſolamente favellerò degl' inſetti terreſtri, ma ancora di alcuni di quegli di mare, e particolarmente di quelle Brume da Lei mentovate nel ſuo *Libro degli Animali viventi, che ſi trovano negli Animali viventi*, che ſono Tarli eſterni de' Navigli; e parlerò ancora de' Dattili, che ſon Tarli de' ſaſſi marini, e degli ſcogli, e ſpero di poter moſtrare evidentemente

16
mente, che queſti, ed altri ſimili animaletti appellati Zoofiti, o Piantanimali anno per multiplicarſi una loro particolare generazione di ſemenza ſimile a quella delle Piante, nelle quali non vi è neceſsaria diſtinzione, ovvero unione di maſchio, e di femmina: E quì ſupplicando V. S. Illuſtriſs. a gradire il buon deſiderio, che ho di ſcoprire qualche verità, le faccio inſieme col sig. Diacinto Ceſtoni divotiſſima riverenza.

Di V. S. Ill.ma

Livorno 18. Luglio 1687.

Divotiß. Servit.
Gio: Cosimo Bonomo.

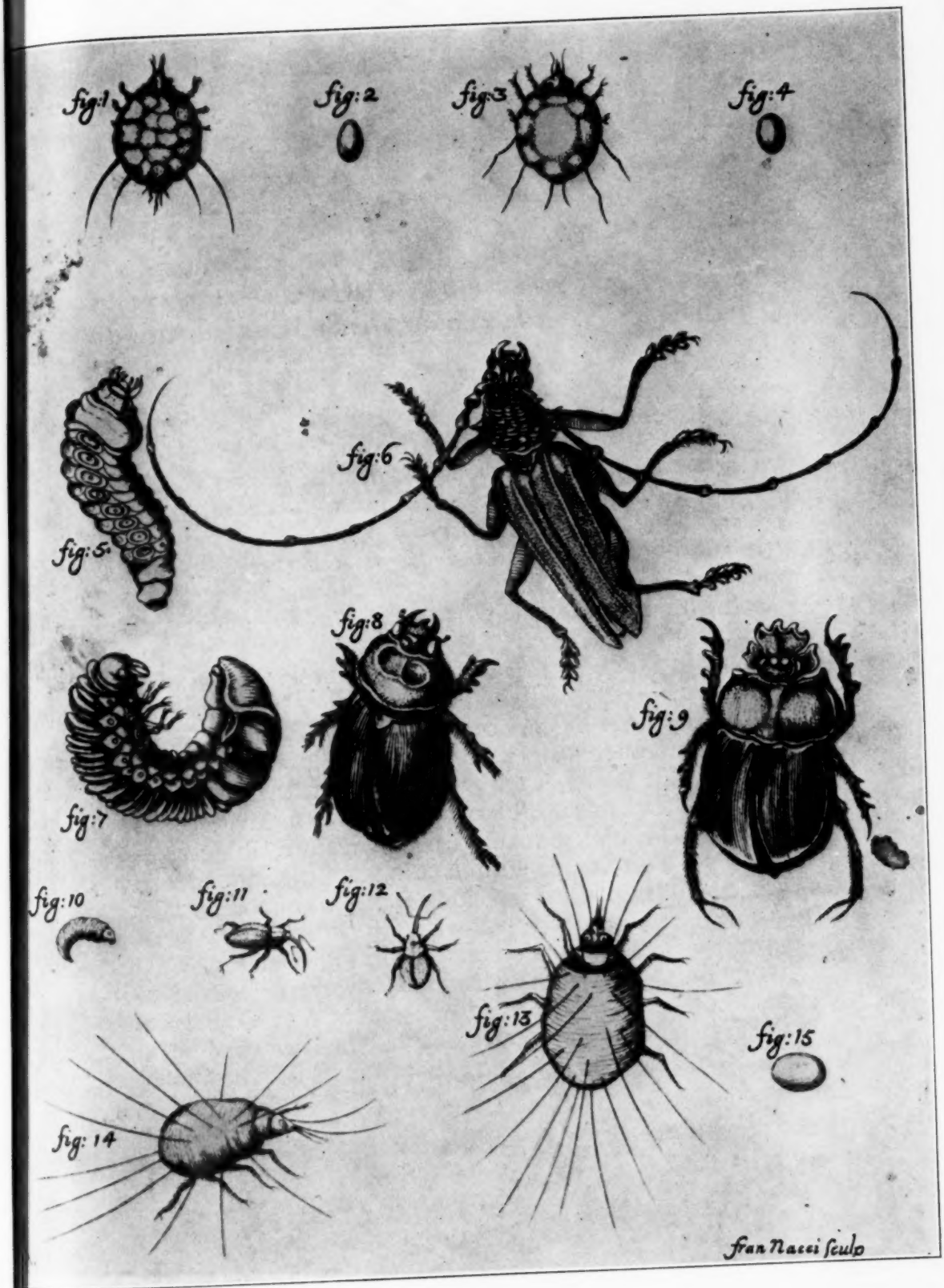
fig:1
fig:2
fig:3
fig:4
fig:5
fig:6
fig:7
fig:8
fig:9
fig:10
fig:11
fig:12
fig:13
fig:14
fig:15
fran Nacci sculp

II. *An Abſtract of part of a Letter from Dr* Bonomo *to Signior* Redi, *containing ſome Obſervations concerning the Worms of Humane Bodies. By* Richard Mead, *M. D.*

HAving frequently obſerved that the Poor Women when their Children are troubled with the *Itch*, do with the point of a Pin pull out of the Scabby Skin little Bladders of Water, and crack them like Fleas upon their Nails; and that the Scabby Slaves in the *Bagno* at *Leghorne* do often practice this Mutual Kindneſs upon one another; it came into my Mind to examine what theſe *Bladders* might really be.

I quickly found an *Itchy* perſon, and asking him where he felt the greateſt and moſt acute *Itching*, he pointed to a great many little *Puſtules* not yet Scabb'd over, of which picking out one with a very fine Needle, and ſqueezing from it a thin Water, I took out a very ſmall white *Globule*, ſcarcely diſcernible: Obſerving this with a Microſcope, I found it to be a very minute Living Creature, in ſhape reſembling a Tortoiſe, of whitiſh colour, a little dark upon the Back, with ſome thin and long Hairs, of nimble motion, with ſix Feet, a ſharp Head, with two little Horns at the end of the Snout; as is repreſented in Fig. 1 and 3.

Not ſatisfied with the firſt Diſcovery, I repeated the ſearch in ſeveral *Itchy* perſons, of different Age, Complexion and Sex, and at differing ſeaſons of the year, and in all found the ſame Animals; and that in moſt of the Watery Puſtules,

Puſtules, for now and then in ſome few, I could not ſee any.

And tho by reaſon of their minuteneſs, and colour the ſame with the Skin, 'tis hard to diſcern theſe Creatures upon the Surface of the Body, nevertheleſs I have ſometimes ſeen them upon the Joynts of the Fingers in the little Furrows of the *Cuticula*, where with their ſharp Head they firſt begin to enter, and by this Gnawing and Working in with their Body, they cauſe a moſt troubleſome *Itching*, till they are got quite under the *Cuticula*; and then 'tis eaſy to ſee how they make ways from place to place by their biting and eating, one ſingle one happening ſometimes to make ſeveral *Puſtules*, of which I have often found two or three together, and for the moſt part very near to one another.

With great earneſtneſs I examined whether or no theſe Animalcules laid Eggs, and after many enquiries, at laſt by good Fortune while I was drawing the Figure of one of 'em by a Microſcope, from the hinder part I ſaw drop a very ſmall and ſcarcely viſible white Egg, almoſt Tranſparent, and oblong, like to the Seed of a Pine-apple, as is ſeen in Fig. 2 and 4.

I oftentimes found theſe Eggs afterwards, from which no doubt theſe Creatures are generated, as all others are, that is, from a Male and Female, tho I have not yet been able by any difference of Figure to diſtinguiſh the Sex of theſe Animals.

From this Diſcovery it may be no difficult matter to give a more Rational account of the *Itch*, than Authors have hitherto delivered us. It being very probable that this contagious Diſeaſe owes its origin neither to the Melancholy Humour of *Galen*, nor the corroſive acid of *Sylvius*, nor the particular Ferment of *Van Helmont*, nor the Irritating Salts in the *Serum* or *Lympha* of the Moderns, but is no other than the continual biting of theſe Animalcules in the Skin, by means of which ſome portion of the *Serum* oozing out

thro the ſmall apertures of the Cutis, little watery Bladders are made, within which the Inſects continuing to Gnaw, the infected are forced to ſcratch, and by ſcratching increaſe the Miſchief, and thus renew the troubleſom work, breaking not only the little Puſtules, but the Skin too, and ſome little Blood Veſſels, and ſo making Scabs, Crufty Sores, and ſuch like filthy Symptoms.

From hence we come to underſtand how the *Itch* proves to be a Diſtemper ſo very catching; ſince theſe Creatures by ſimple contact can eaſily paſs from one body to another, their motion being wonderfully ſwift, and they as well crawling upon the ſurface of the Body as under the *Cuticula*, being very apt to ſtick to every thing that touches 'em, and a very few of them being once lodged, they multiply apace by the Eggs which they lay.

Neither is it any wonder if this infection be propagated by the means of Sheets, Towels, Handkerchiefs, Gloves, *&c.* uſed by Itchy perſons; it being eaſy enough for ſome of theſe Creepers to be lodged in ſuch things as thoſe; and indeed I have obſerved that they will live out of the Body 2 or 3 days.

Nor in the laſt place ſhall we be at a loſs to know the reaſon of the cure of this Malady by Lixivial Waſhes, Baths, and Ointments made up with Salts, Sulphurs, Vitriols, Mercury's, Simple, Præcipitate or Sublimate, and ſuch ſort of corroſive and penetrating Medicines. Theſe being infallibly powerful to kill the Vermin lodged in the Cavities of the Skin; which ſcratching will never do, partly by reaſon of their hardneſs, and partly becauſe they are ſo minute as ſcarcely to be found by the Nails.

Neither do inward Medicines perform any real ſervice in this Caſe, it being always neceſſary after a tedious uſe of theſe to have recourſe to thoſe external ones already mentioned. And if in Practice we oftentimes Experience, that this Diſeaſe, when we think it is quite cured by Unction, does nevertheleſs in a ſhort time return again, this is not

ſtrange

(1299)

ſtrange, ſince tho the Oyntment may have killed all the Living Creatures, yet it may not probably have deſtroyed all their Eggs, laid as it were in the Neſts of the Skin, from which they may afterwards breed again and renew the Diſtemper. And upon this account, 'tis very adviſable after the Cure is once performed, ſtill to continue th. Anointing for a day or two more; which it is the eaſier to do, becauſe theſe Liniments may be made agreable enough, and of a good ſmell, as particularly is that compounded of the Ointment of Orange Flowers or Roſes, and a ſmall quantity of red Præcipitate.

IMPETIGO OR PYODERMATITIS NEONATORUM

CHARLES B. REED, M.D.
Chief obstetrician, Wesley Memorial Hospital
CHICAGO

In 1864, Tilbury Fox described the contagious impetigo of children and infants. He called attention especially to the vesicular form which now appears in maternity wards. In 1891, Almquist showed that the infecting organism was a staphylococcus. In 1900, Matzenauer linked pemphigus neonatorum to impetigo contagiosa by proving the identity of the activating microbe. Animal inoculation generally failed, but in 1911, Landsteiner and his associates produced pemphigoid lesions in the chimpanzee.

With these several discoveries, the knowledge of impetigo remained about the same until 1917. Curiously, in the fifty-three years that elapsed after its recognition by Fox, particular attention was not called to the disease in any widespread epidemic. In 1917, however, as a questionnaire verified, this condition, hitherto rare and sporadic, suddenly changed its type and appeared in more or less virulent epidemics. Few maternity cases were exempt, and some physicians who had not had any experience with impetigo as a nursery problem were overwhelmed by the flood of cases. Everywhere nurseries were treated like hospitals for contagious diseases, but only with partial success. Many were closed entirely, and others should have been.

Dr. F. H. Falls, finding himself in the presence of a serious outbreak, identified the disease by the organism, and, filled with laudable zeal, proved his diagnosis by auto-inoculation which in twelve hours resulted in a vesicle from which he again cultured the staphylococcus in forty-eight hours.

Such a history inspires questions and speculation. Why should a disease which has been quiescent for over half a century, as the literature indicates, take on the epidemic form at a particular time and appear simultaneously all over the country? Why should a hospital like Wesley Memorial, in which the infection had never been seen, abruptly encounter five visitations in a period of ten years—epidemics which spread over a term of one or two months each? One can only speculate.

The immunity of the mother and of the infant was undoubtedly diminished, but why and how? Was it due to the emotionalism of the war? Was it some change in food, like a lack of carbohydrates, or did the ever present staphylococcus change in type or virulence?

The purpose of this paper is to call attention to these unanswered questions and to report a hitherto questionable factor in the etiology.

CLINICAL COURSE

It may be well to review the clinical course of the disease, since eruptions often arise after the mother and infant have left the hospital, and the onus of the outbreak is put on the nursery. The time of onset is not certain, but the method of attack is usually regular. One or more vesicles or pustules of variable size appear on the skin of the infant, sometimes in the first three days, sometimes in the second half of the first week, and not infrequently later. The exposed parts, like the face or hands, or areas where skin meets skin, as in the groin or the folds of the neck, are points of preference. The vesicles may be tense or flaccid. They may be discrete and circumscribed or confluent. The contained fluid may be serous, opalescent or purulent. The skin underneath may be hyperemic or infiltrated, but occasionally the blebs appear on what seems to be normal skin. The bleb ruptures or subsides with exfoliation, but there is rarely any crusting. The red, moist corium is exposed like a burn. This phenomenon may mark the end of the infection, or other vesicles may appear. Large areas of skin may be loosened, and, finally, the organisms may penetrate the deeper layers and form abscesses, especially among the follicles of the hairy scalp and in the cellular tissue around the breasts or in the folds of the elbow and axilla.

BACTERIOLOGY

As mentioned in the history, it has been shown by Matzenauer, and confirmed by all subsequent observers, that the activating organism in impetigo is usually a peculiar strain of *Staphylococcus aureus* or *S. albus*, although other bacteria, like the streptococcus, are encountered occasionally. My experience coincides with this conclusion, which has been ably discussed and summarized by Belding.

That the organism is not always the same in character and in potency is urged by Baerthlein, who isolated four distinct types of staphylococci from one bleb. His work seemed to show that the diversity of type was due to variability within the species. It is also Mellon's opinion that the staphylococcus and the streptococcus are saprophytic most of the time, but have "cadences of virulence" in which impetigo is one pathologic manifestation.

Microscopically as well as macroscopically, the blebs show many diversities. Some are sterile and some are not. In the congenital cases reported by Labhardt and Waltart in 1908, some of the vesicles did not contain any microbic elements but did show white cells with polymorphonuclears. Except in two instances, my observations in congenital cases were similar.

NOMENCLATURE AND DEFINITION

Nomenclature.—The bullous exanthema which occur in the course of many septic conditions may be symptomatic of the same underlying

cause in pemphigus or merely a kindred phenomenon, but it is more rational to consider the mild pemphigus of the new-born infant as closely allied to what is termed impetigo contagiosa. Many observers accept this, and McCandlish further suggests that dermatitis exfoliativa, through its staphylococcic origin, belongs in the same category, though probably this is a more malignant form. Multiple abscess, which is frequently associated with the diseases already mentioned, also has the staphylococcus as its causative agent. Since the histologic observations are essentially identical in all these diseases which show a common origin, it is justifiable to assume that when pemphigus, impetigo, multiple abscess and dermatitis exfoliativa occur in the new-born they are parts and

Case of congenital pyodermatitis neonatorum or impetigo.

phases of the same condition, although this conclusion goes somewhat farther than Matzenauer and McCandlish have indicated. All are due to the staphylococcus or the streptococcus, or to both, and all may appear at the same time on the same person, the variations in the clinical picture being due to different strains or different combinations of the invading organisms, together with differences in soil, in resistance and in the idiosyncrasy of the patient.

In the case of congenital impetigo reported in this paper, the infant was born with impetiginous pustules on the scrotum, and developed blebs of pemphigus on the hairy scalp and a circumscribed collection of fluid under the scalp. Thus, three aspects of the disease with only one evident etiologic factor were present in the same person at the same time.

If the force of the data presented is admitted, it would seem best to separate these diseases which belong distinctively to the new-born infant from similar conditions in older children which do not always have the same clinical appearance or etiology (Belding). The infections of older children are well established in the professional mind as pemphigus neonatorum, impetigo and multiple abscess; and I would propose that this kindred group of skin infections in the new-born, which has been confused by inappropriate, indistinctive, and misleading names, be combined under one specific designation.

The name of pyodermatitis neonatorum is therefore suggested because it is descriptive of the histologic observations. This term combines a Greek noun with a Latin qualifier, but both are the tongues of science. Adjectives like contagiosa, benigna and maligna may be added, if necessary, for completeness. Pyodermatitis contagiosa neonatorum is an acute, contagious, inflammatory disease of the new-born infant, characterized by discrete, flat, umbilicated, superficial blebs or vesicles on a mildly hyperemic base, which contain a clear fluid, an opalescent fluid or pus, and which tend to subside rapidly, to rupture, with consequent exfoliation of the skin, or to develop further into subdermal abscesses.

MORBIDITY AND TRANSMISSION

Morbidity.—The seriousness of the disease manifestly depends on the severity of the attack and on the susceptibility of the infant. It is probable that in general, 30 per cent of all infants exposed to this disease will show signs of the infection; Belding's estimate is from 20 to 30 per cent, and Dickey's, 34 per cent.

The mild cases are self-limited, with a cycle of about twelve days. The health of the infant is not materially affected. There are no constitutional symptoms. The virulence of the germ is slight. The infant is well nourished and usually free from fever.

On the other hand, if the child dies, a higher potency of the invading organism must be suspected. That death is not rare in the graver forms is shown by several observers. Thus in Biddle's epidemic, 30 per cent died. Cole and Rue lost one of nine patients; Schwartz, 25 per cent and Hartzell, 50 per cent. Falls had two deaths in forty-seven patients, and McCandish, 1.3 per cent. Belding's average taken from fifteen observers was 21 per cent.

Transmission.—Since the staphylococcus usually and the streptococcus sometimes is the etiologic factor, how does the child get the disease? The infants themselves give no clue, for the well nourished are affected as frequently as the weaklings. Indeed, male and female, fat and lean, premature and postmature and infants spontaneously or instrumentally delivered are all attacked equally. In Waltart's case, one of a pair of

twins was born with impetigo, while the other was clean and remained so.

The five most obvious means of conveying the contagion are: the attending physician, other infants, the nurse, the paraphernalia of the nursery and the mother.

The physician is undoubtedly a carrier. The unclean obstetrician, the gynecologist whose hands are daily plunged into suppurating pelvic organs, the general surgeon who handles cases in which there is pus, the interns who apply dressings in such cases and the general practitioner who is compelled to attend patients with illnesses that are openly or only possibly septic cannot exonerate themselves from guilt if they perform obstetric work, enter the nursery or handle the infants without strict antiseptic precautions. Young children and other lay visitors to the nursery are even more likely to be carriers, for the staphylococcus is everywhere.

A healthy infant can easily be contaminated through direct or indirect contact with other babies, either before or after the signs of the disease have appeared. Again, the infected infant may infect its mother or its nurse, as Fall reports, and these, in turn, will spread the epidemic. In Abegg's cases of congenital pemphigus, the infant died on the second day, but an epidemic in the nursery followed.

The nurse is in constant attendance on the infants and may have the organisms on her person, in an acne, a suppurating antrum or a chronic nasal infection. At other times, she may carry the infection from one infant to another or from septic contacts elsewhere. Relief nurses are especially apt to carry contagion into the maternity ward.

The utensils in the nursery may be at fault. The clothing, bedding and linen can be autoclaved and made reasonably safe, but certain objects may escape the most painstaking efforts. Thus, Dickey, after providing his infants with what he thought was a definitely sterile environment, tested his precautions by culture and obtained positive growths of staphylococci from the scale tray, from the towel over the tray, from the bath thermometer, from the table drawer and from the water in the shower.

Mothers with erysipelas, acute abscesses, cellulitus and impetigo obviously may be a source of contamination to the infant. A breast with staphylococci in the gland tissue or in the milk may start a widespread epidemic.

Mellon and his associates made cultures of the maternal milk from the superficial ducts and from the deeper recesses of the breasts and demonstrated the staphylococcus. In tracing epidemics, this possibility must not be overlooked. Apparently the so-called normal milk of the mother contains a varying percentage of staphylococci. Mellon stated that probably 30 per cent show positive cultures, and yet mastitis does not occur, nor do the infants necessarily have pemphigus. He also states

that the organism can be present in the blood stream and cause few or no symptoms.

Kostlin claims the staphylococcus is present in the milk of 23 per cent of pregnant women, while Cohn and Neumann will admit only 2 per cent or less. In 137 puerperal women, Kostlin found *Staphylococcus albus* in 132 and *Staphylococcus aureus* in 79. In response to a questionnaire, the Nebraska Methodist Hospital reported that the breast milk from all but one of the mothers of their infected infants gave cultures positive for staphylococcus.

Making all allowances for errors in these data, one must agree with Mellon and regard the breast milk as a probable source of infection. Naturally, this source can be excluded when the infant does not nurse and when the eruption occurs before the baby is breast fed. In two of my cases abscesses of the breast developed, and the infants broke out with pustules so nearly at the same time that it was impossible to say which infected the other or whether both were due to some common source such as the milk.

It is evident that after the child is delivered the opportunities for contamination are innumerable, but what shall be said about the congenital cases? Must one consider these as cryptogenic infections wherein no port of entry can be discovered?

In the series of cases of congenital pemphigus and impetigo reported by Labhardt and Waltart, no clue was obtained as to the origin of the infection. Milk or blood cultures are not reported. One mother had phlebitis before confinement and may have had organisms circulating in the blood at the time of labor. It is possible, too, that many of the pemphigoid blebs are due to toxins from angina, influenza or other similar infections. Nevertheless, most of the mothers in the Labhardt series were apparently healthy even when the streptococcus was found in the bleb. Even so, a blood contamination with placental transmigration cannot be excluded.

Infection from the vagina could occur if the interval between the rupture of the membrane and the delivery was long enough, but only in one instance was this possible. Von Reuss states that healing lesions have been found on the new-born infant which can be interpreted only as proof that infection occurred before the rupture of the bag of waters. If the blebs are accounted for as a product of an obscure toxin in the mother or the infant, then the pustule must be due to some endogenous agent. If the mother furnishes the germ, there are still two barriers to be passed, the placenta and the membrane, whether injured or uninjured. Spirochetes, tubercle bacilli and the germs of variola and scarlatina can pass the uninjured placental wall. That other bacteria can also be carried through by the blood stream, one must assume, and the more readily if the filter is defective. Hellendall claims that bacteria from the peri-

toneal cavity can penetrate the uninjured membrane by way of the tubes, but again the question arises as to how the organisms can reach the infant if the liquor amnii is sterile, as Raineri demonstrated in 1907? Does a sterile liquor amnii sterilize also a pustule or bleb arising from a blood-borne infection?

CONGENITAL INFECTIONS

Even though it is admitted that contamination occurs through contact with the nurse, mother, physician, nursery paraphernalia and the milk, as well as with other infants, there are still cryptogenic cases and congenital infections to be considered. Labhardt and Waltart report sixteen instances of congenital pemphigus or impetigo. In response to a questionnaire, the Fifth Avenue Hospital of New York reports two more "discovered before the cord was cut." To these eighteen, I desire to add nine cases that have appeared in the Wesley Hospital maternity ward since 1925. It is probable that many were overlooked prior to this date. The infants all showed distinct blebs or pustules. The first two cases at the Wesley Hospital slipped by with only a notation, for the staff was not familiar with Labhardt's work, and the event was regarded dubiously. The next seven cases occurred at irregular intervals. The blebs and pustules in five cases were sterile. Only leukocytes were found, some being polymorphonuclear, as signs of inflammatory changes and microbic activity. Whatever germs had been present had perished and undergone absorption. From the pustules of one, however, a positive culture of staphylococcus was obtained. Thus, of the eight cases, only one was unimpeachably diagnostic.

REPORT OF CASE

Baby H., a boy, was born in the service of Dr. Hauch on Feb. 9, 1928. The child was about three weeks overdue and weighed 10 pounds and 14 ounces (5 Kg.). He was delivered at 5:08 a. m., and was examined immediately. A slight hypospadias was present on an otherwise fine body. There were fifteen umbilicated pustules on the swollen scrotum varying in size from 2 to 5 mm. The pustules were deep yellow and apparently undergoing retrograde metamorphosis. The field of infection was photographed by Dr. Mason. The Kahn and Wassermann tests were performed on both mother and infant, and smears and cultures were made from the pustules by Dr. Thurman. Twelve hours after birth, the hairy scalp was covered with small pemphigoid blebs. Twenty-four hours after birth, a large subdermal fluctuant mass appeared over the left parietal bone. Thirty-six hours after birth, several punctate, yellow-headed pustules developed on the chest and abdomen. The Kahn and Wassermann tests were negative for both mother and infant, as were the cultures taken from the blebs, the fluctuant subdermal mass, the scalp and the secondary pustules on the chest and abdomen. The culture of the primary pustules on the scrotum gave a positive growth of *Streptococcus hemolyticus*. The child did not have any rise of temperature, nursed well and gained in weight. On the eighth day, an indurated nodule as large as a bean appeared on the left cheek. This also subsided after eight days without suppuration, which suggests that the immunity had

become generally established. The mother gave a history of tonsillitis four weeks prior to delivery.

The milk appeared in the mother's breasts at the usual time, and on withdrawal of specimens by Mellon's technic, it was found that all the fluid, deep and superficial, gave almost pure cultures of *Micrococcus tetragenes.*

Belding states that an etiologic relationship has not been established hitherto between the streptococcus and the so-called impetigo contagiosa. This, therefore, must be the first report of an obviously uncontaminated case due to *S. hemolyticus.* The streptococcus, according to report, is extremely rare as the sole activating organism. To speak further than this would be mere speculation.

This case has awakened a new interest in the neglected and almost forgotten pioneer work of Labhardt and Waltart, and the emphasizing of the possibility of intra-uterine infection gives a new factor in the etiology which must be reckoned with hereafter when epidemics arise.

PREVENTION AND TREATMENT

Prevention.—Prophylaxis in the maternity wards took on an extreme aspect when the first epidemic of impetigo visited Wesley Memorial Hospital in 1917. The walls, tables, cribs and woodwork were scrubbed with soapsuds, wiped off with a solution of cresol and repainted. The linen, bedding and all movable utensils were autoclaved. Bottles, nipples and every shred of material that touched the infant were sterilized twice. The tub baths were discarded, and a slab and spray system was installed. Albolene, borated lard and other unguents which were regarded as essential for the removal of vernix caseosa were abandoned, and sterile green soap from sterile containers was employed. The infants were handled only when they were washed, when their clothes were changed or when they were taken to be fed, and then they were handled by nurses who passed their hands through chlorine or mercuric chloride solutions between each case. Frequent inspection of healthy infants was made to provide for prompt quarantine. In every instance in which blebs or pustules appeared, they were opened with aseptic care and treatment administered; the infant was isolated under the care of a special nurse, who handled him with gloves. It is not known whether these precautions made any difference in the spread of the disease, for epidemics continued.

Treatment.—The active management of the first infections followed the methods ordinarily successful in older children. The treatment was started with ointments, such as ammoniated mercury, but these were found to be useless. When the blebs were punctured and covered with the ointment new vesicles formed underneath. Mercurochrome-220 soluble and iodine were no more effective. Dusting powders containing boric acid or formaldehyde helped some, but dermatol was too harsh on the

skin when continually applied. Meanwhile, the blebs were opened by a sterile needle or by a pledget of gauze soaked in 95 per cent alcohol, and the pustules and abscesses were iodinized and opened with antiseptic precautions. At the present time, all the spots of irritation, either advancing or receding, and all the opened blebs and pustules are washed with alcohol or a 1 : 200 solution of hypochlorite of sodium and covered with calamine lotion. A 5 or 10 per cent solution of silver nitrate is sometimes applied to the open pustule, and the quartz light is used when the pustules are numerous.

After attention had been called to the hypothesis that there was a decrease in immunity by the occurrence of the congenital infections, vaccines were thought of and this brought up the question of immunogen, which is made from the ectoplasm of the bacterial cell, and theoretically has all the virtues of the vaccine without the toxin. It is an aqueous solution of the antigens of *S. albus* and *S. aureus*, with a trace of phenol solution for preservation.

The idea was to make injections in fifty consecutive cases in the general service and to have the private cases as a control. This study was carried out with conscientious thoroughness by Dr. Thurman, the resident obstetrician. In all, forty-eight infants received injections, but two were withdrawn from the series after two injections because one was found to have an enlarged thymus and the other developed projectile vomiting. Seven of the forty-six infants showed pustular eruptions on the third, fifth and eighth days, but the eruption cleared up inside of two days in all cases. Thirty-nine, or 80 per cent, were untouched by disease.

During this period, twenty-seven private patients passed through the maternity ward without immunization. Twenty-four of these, or 88 per cent, had pustules. The epidemic now ceased, and the experiment was discontinued.

CONCLUSIONS

Conclusions, of course, are impossible on such scanty data, but according to the present hypothesis, it would seem that a certain proportion of the infants become infected in utero, and the pyodermatitis passes through its various stages to recovery, as the healed lesions reported by von Reuss would indicate.

In the next degree, it is found on careful examination that vesicles or pustules exist at birth. The outbreak, however, is stationary or retrogressive. Some of the lesions contain germs, but since the immunity is practically established at the date of delivery, the new blebs that develop do not become infected. The subdermal accumulations of fluid, as well as the indurated nodules, are aborted in their evolution. Suppuration does not occur in any of these foci, and the skin rapidly clears up. This theory is supported by the fact that so many of the earlier

lesions in my series and in Labhardt's were sterile, and by the clinical picture presented in the case of congenital pyodermatitis on which this paper is based.

At other times, the infections in utero of later onset may continue in a state of active inflammation up to the time of delivery. The pemphigoid vesicles break out on or before the third day of life as a result of the circulating toxin. The contents become infected, pustules form and the disease may pass on into the multiple or abscess stage with positive germ cultures demonstrable at all times. Meanwhile, the infant is constantly a potential source of contamination to other persons, as Abegg's case exemplifies.

When the blebs and pustules are not of congenital origin, the eruption must break out as late as the second day, or later, as is proved by Fall's auto-inoculation. The infants which break out on the third day or later are infected by the milk, by contaminated apparatus, by other infants or by carriers. In every case of this kind, the milk should be suspected and cultured by Mellon's technic.

The rather surprising results of the experiment with immunogen would indicate that diminished immunity is a pronounced factor in the contagion, and while none of the prophylactic measures hitherto described can be neglected, yet the evidence indicates strongly that success in prevention can be completely achieved only by raising the resistance of the mother and the infant.

BIBLIOGRAPHY

Almquist, E.: Ztschr. f. Hyg. u. Infectionskrankh. **10**:253, 1891.

Biddle: So-Called Pemphigus, J. Cutan. Dis. **32**:268, 1914.

Baerthlein: Centralbl. f. Bakteriol., Abt. 1, **81**: Orig. 369-435, 1918.

Belding, D. L.: Etiology and Epidemiology of Impetigo Contagiosa Neonatorum, Am. J. Obst. & Gynec. **11**:70, 1926.

Blaisdell, J. H.: Management of Impetigo Contagiosa in Maternity Hospitals, J. A. M. A. **83**:833 (Sept. 13) 1924.

Breinl and Mischer: Centralbl. f. Bakteriol. **90**:224, 1923.

Clegg and Wherry: J. Infect. Dis. **3**:165, 1906.

Cole, H. N., and Ruh, H. O.: Pemphigus of the New-Born (Pemphigus Neonatorum), J. A. M. A. **63**:1159 (Oct. 3) 1914.

Dickey, L. B.: Epidemic of Impetigo in New-Born Infants, Arch. Pediat. **43**:145, 1926.

Falls, F. H.: Pemphigus Neonatorum, J. Infect. Dis. **20**:86, 1917.

Farley, D. L., and Knowles, F. C.: Impetigo Contagiosa, Arch. Dermat. & Syph. **3**:753 (June) 1921.

Foerster, O. H.: Pemphigus Neonatorum, or Bullous Impetigo Contagiosa of the New-Born, J. A. M. A. **53**:358 (July 31) 1909.

Flehme: Dermat. Ztschr. **31**:111, 1920.

Hellendall: Beitr. z. Geburtsh. u. Gynäk. **10**:275, 1920.

Knowles, F. C., and Munson, H. G.: Institutional Epidemics of Bullous Impetigo Contagiosa, Arch. Dermat. & Syph. **7**:376 (March) 1923.

Kostlin: Arch. f. Gynec. **53**:201, 1897.

Labhardt and Waltart: Ztschr. f. Geburtsh. u. Gynäk. **61**:600, 1908.

Landsteiner, K.; Lavaditi, C., and Prasek, E.: Compt. rend. Soc. de biol. **70**:643, 1911.

Leroux: Ann. de dermat. et syph. **4**:298, 1893.

Lewandowsky: Arch. f Dermat. u. Syph. **138**:438, 1908.

Matzenauer, R.: Wien. klin. Wchnschr. **13**:1077, 1900.

Mellon, R. R.; Caldwell, D., and Winans, W. W.: Mother's Milk as a Source of Infection in Epidemic Pemphigus Neonatorum (Impetigo Contagiosa Bullosa), Am. J. M. Sc. **169**:419, 1925.

McCandlish, H. S.: Report of 224 Cases of Impetigo in New-Born, Am. J. Obst. & Gynec. **9**:234, 1925.

Raineri: Gynäk. Rundschau., no. 23 and 24, p. 903, 1907.

Smith and Burkey: Bull. Johns Hopkins Hosp. **35**:78 (March) 1924.

MICROCHEMICAL STUDIES OF ARSENIC IN ARSENICAL DERMATITIS *

EARL D. OSBORNE, M.D.
Professor of Dermatology and Syphilology, University of Buffalo
BUFFALO

Two years ago I [1] presented the first of a series of papers on the microchemical study of arsenic in the tissue. The method of preparation was described in detail, and numerous controls and proofs of arsenic were given. Since that time a large number of sections have been examined with adequate controls, and the method has been eminently satisfactory. Two slight changes have been made in the method as originally used. Instead of incubating the pieces of tissue at 70 to 80 C. for four days, it was found that incubation at 56 C. was sufficient if the tissue was cut into small pieces. Considerable staining power was retained. Hemalum, instead of hematoxylin, was used as stain, with better results.

In the previous paper,[1] the results of a study of arsenical keratoses and pigmentation were given. Since then, numerous sections of the same conditions have been examined with practically identical results. Nearly all of the arsenic was localized in the epidermis, subpapillary layer and other ectodermal tissues, such as the sweat and sebaceous glands and their ducts, and the hair follicles. In every instance the drug administered contained quintavalent arsenic, such as solution of potassium arsenite (Fowler's solution) and solution of arsenous and mercuric iodide (Donovan's solution), arsenic acid, sodium and iron cacodylate. None of the patients had received trivalent arsenicals such as the various arsphenamines. Numerous writers have called attention to the extreme rarity of keratoses and arsenical pigmentation following the administration of arsphenamine and to the differences between the dermatitis due to arsphenamine and to quintavalent arsenicals. These observations were responsible for the present microchemical study of

---

* Material for this study was obtained from the Section of Dermatology and Syphilology, Buffalo City Hospital, Earl D. Osborne, Chief, and from the private practice of Drs. Earl D. Osborne and Cleveland J. White.

* Read at the Fiftieth Annual Meeting of the American Dermatological Association, May, 1927.

1. Osborne, Earl D.: Microchemical studies of Arsenic in Arsenical Pigmentation and Keratoses, Arch. Dermat. & Syph. **12**:773 (Dec.) 1925.

arsenic in patients with dermatitis following the administration of arsphenamine.

The material for this study comprises tissue removed from eighteen patients with a dermatitis following the administration of arsphenamine. Five of the tissues were from negroes.[2] Arsphenamine, neoarsphenamine and sulpharsphenamine were the drugs responsible for the dermatitis. The results were the same with each drug, so a distinction will not be made. The severity of the dermatitis varied in the group of patients from a mild erythema to a severe exudative dermatitis with intense edema, thickening, fissuring and crusting. The pathologic changes were the same as those in all grades of dermatitis and do not require a detailed description.

OBSERVATIONS ON THE DISTRIBUTION OF ARSENIC IN ARSPHENAMINE DERMATITIS

The deposits of arsenic were uniform in all the sections from patients with dermatitis produced by arsphenamine, including the negroes, the only difference being in the quantity of arsenic present. At no stage in the dermatitis could any but the most minute quantity of arsenic be found in the epidermis, including the horny layer (fig. 3). The subpapillary layer of the corium was almost entirely free from arsenic. Special search was made for arsenic around the capillary loops in the papillae, but only trifling amounts were seen. The bulk of the arsenic was deposited deep in the corium around the arterioles and capillaries, in the walls and lumens of the sweat and sebaceous glands and their ducts, in the hair follicles and in the hair shafts (figs. 4 and 10). The amount of arsenic was proportionate to the severity of the dermatitis, providing the biopsy was taken prior to the administration of the sodium thiosulphate. Sections of normal skin removed from patients receiving injections of arsphenamine showed the arsenic in the same location, but in relatively small amounts.

EFFECT OF SODIUM THIOSULPHATE IN ARSPHENAMINE DERMATITIS

In this series, twelve of the eighteen patients, from whom sections were examined had received sodium thiosulphate before the biopsy was taken. In five of these twelve cases biopsies were made before the sodium thiosulphate was administered. In three of these five cases, the reduction in the amount of arsenic was remarkable, and only small amounts were demonstrable after a course of sodium thiosulphate. A course of sodium thiosulphate consisted of daily injections of 1 Gm. of the drug for six days. These were mild cases clinically, and the

2. Four of these tissues were supplied by Dr. Clark W. Finnerud of Chicago.

dermatitis cleared up coincidentally and shortly following the administration of the sodium thiosulphate. The other two were severe cases of dermatitis, and an appreciable diminution in the amount of arsenic after a course of sodium thiosulphate was not noted. This result was

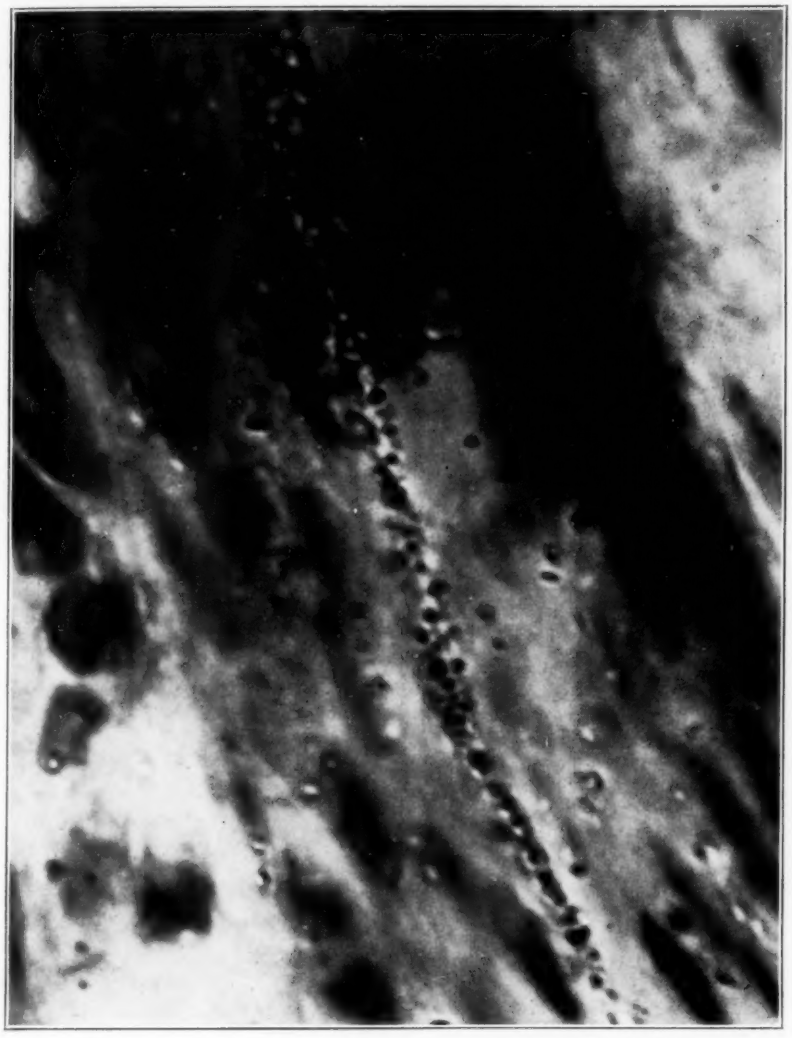

Fig. 1.—Prepared for arsenic. Section from a patient with chronic eczema of the leg after administration of a solution of potassium arsenic. Selection shows a coil duct just entering the epidermis. Note large amount of arsenic in the duct, in the walls of the duct and in the surrounding epidermis. All the arsenic is apparently intercellular. Magnification, × 3,380.

paralleled by the clinical course in each case, since neither was noticeably affected by the drug. Figures 3 to 7 were from sections taken from one of these patients.

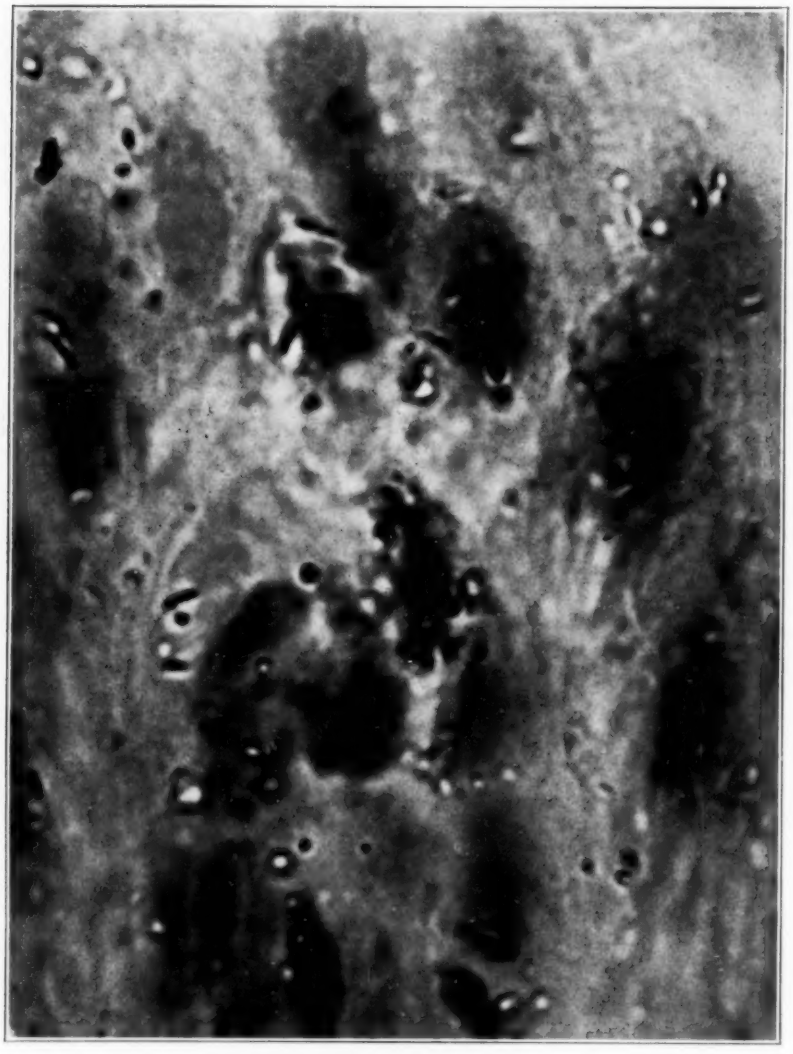

Fig. 2.—Prepared for arsenic. Section from a patient with chronic eczema of the leg after administration of solution of potassium arsenite. Section shows large amounts of arsenic in a papilla and the surrounding epidermis. All the arsenic is apparently intercellular. Magnification, × 3,880.

RESULTS OF ADMINISTRATION OF ARSENIC IN MISCELLANEOUS CASES

An attempt was made to determine approximately how soon after an injection of arsphenamine, the arsenic appeared in an early syphilitic infiltrate. A young woman, aged 22, presenting a maculopapular syphilid and many condylomata lata, was given 0.1 Gm. of arsphenamine for each 30 pounds (13.6 Kg.) of body weight. Sections of condylomata lata were removed at one, ten and twenty-four hour intervals following the injection. Arsenic was not found at the one-hour interval, and only slight amounts were found deep in the corium around the arterioles at the ten-hour interval. Only after twenty-four hours were appreciable

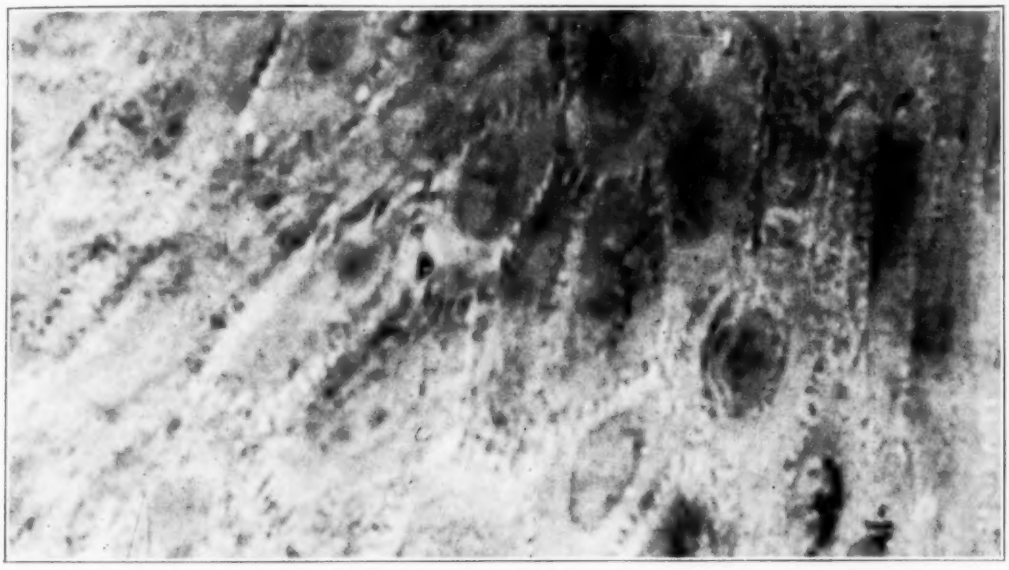

Fig. 3.—Prepared for arsenic. Section from a patient with arsphenamine dermatitis. Arsenic is not seen in the epidermis. Magnification, × 2,500.

amounts of arsenic present, and all of it was deep in the corium around the small vessels in the syphilitic infiltrate. Arsenic could not be found in the subpapillary part of the corium nor in the acanthotic epidermis.

The results of dark-field examination for spirochetes were negative at the ten and twenty-four hour intervals.

A man presented a patch of lichenified eczema on the lateral surface of the leg. He had taken solution of potassium arsenite intermittently for a year. Practically all of the arsenic was found in the epidermis, papillae, hair follicles, sweat and sebaceous glands and their ducts. (Figs. 1 and 2). A relatively insignificant amount of arsenic was found around the arterioles and capillaries.

Since the exact location of the arsenic in relation to the cell is of great importance to the study of the physiologic and pathologic effects of arsenic in the body, special attention was paid to this point. After studying hundreds of sections from all the conditions mentioned, I am

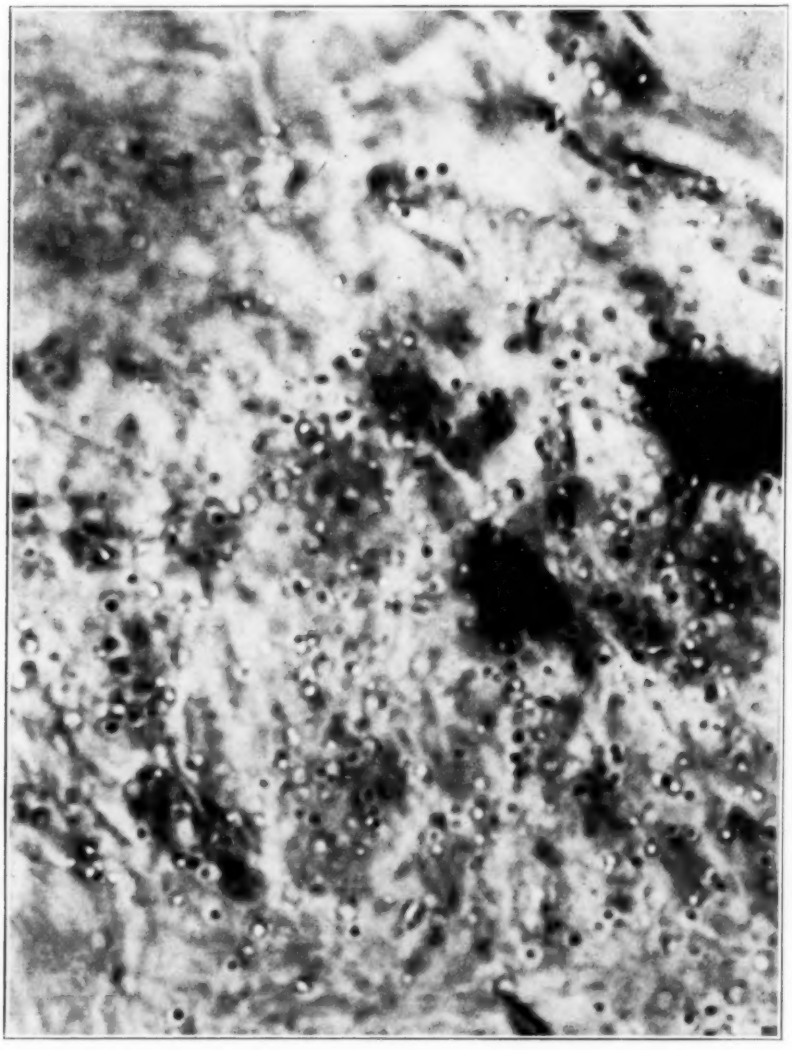

Fig. 4.—Prepared for arsenic. Same section as in figure 3, showing large amounts of arsenic in a sebaceous gland. Magnification, × 3,880.

unable to say that any arsenic was present inside the cell; most of it was intercellular, as the accompanying figures show. Further study with high magnifications and careful staining is necessary before this point can be definitely settled.

COMMENT

Several facts stand out prominently in this study of arsenic in the tissue: First, the localization of the arsenic in the skin is different and striking following the administration of the trivalent and the quintavalent arsenicals used in these cases. The arsenic in quintavalent com-

Fig. 5.—Prepared for arsenic. Same section as in figures 3 and 4, showing large amounts of arsenic deep in the corium in the wall and in the tissue around a small arteriole. Magnification, × 3,880.

pounds had a special affinity for structures of ectodermal origin, such as the epidermis, sweat and sebaceous glands and their ducts, hairs and hair follicles and relatively less affinity for the blood vessels in the corium. The arsenic in trivalent compounds had a special affinity

for the vascular structures such as the small arterioles and capillaries below the papillae. This observation confirms the clinical opinion that arsphenamine is vasculotoxic. Why then do some persons develop dermatitis following injection of arsphenamine? It must be because for some reason that is not understood, the cutaneous vasculature will

Fig. 6.—Prepared for arsenic. Same as in figures 3, 4 and 5, showing large amounts of arsenic in and around a coil gland duct deep in the corium. Magnification, × 3,880.

not stand the onslaught from trivalent arsenic or the blood vessels have a greater affinity for it, or both.

The greater affinity of quintavalent arsenicals for purely ectodermal structures offers a plausible explanation for the marked affinity of atoxyl

Fig. 7.—Prepared for arsenic. Section from a patient with arphenamine dermatitis after receiving 4 Gm. of sodium thiosulphate in four days. The section is cut above the entrance of the sebaceous gland duct into the hair follicle. Large amounts of arsenic are seen in the hair, around it, and in the follicle. Magnification, × 3,880.

and tryparsamide for the central nervous system. This is an interesting phase of the problem which is now under investigation.

The foregoing facts fit in well with clinical observations in a number of instances. Quintavalent arsenicals frequently produce pigmentation, keratoses, mild dermatitis, wrist drop and optic atrophy, whereas trivalent arsenicals produce severe dermatitis, hemorrhagic encephalitis

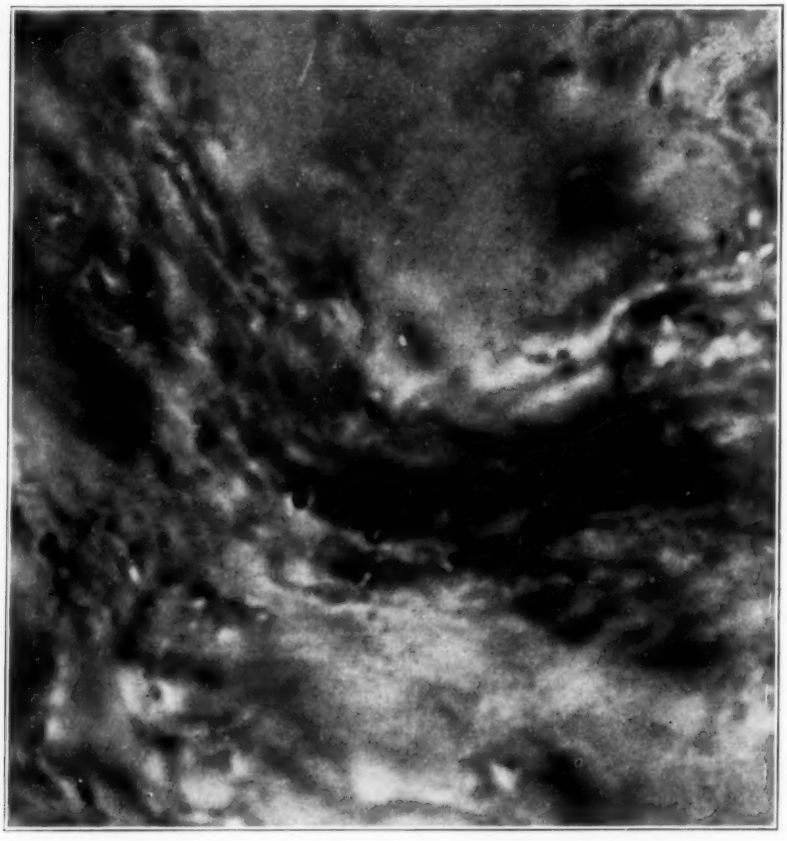

Fig. 8.—Prepared for arsenic. Section from a patient with arsphenamine dermatitis who had received seven injections of arsphenamine and 4 Gm. of sodium thiosulphate two weeks later. Biopsy was taken four days later. Although the dermatitis was severe at this time, note the relatively small amount of arsenic around the arterioles and capillaries in the corium. Magnification, × 3,880.

and purpura. The pigmentation which follows dermatitis produced by arsphenamine is secondary to the long continued dermatitis.

There may be many factors in this difference of localization of the arsenic following trivalent and quintavalent arsenicals. The presence of two benzene rings and the amino and hydroxyl groups in the arsphenamine molecule may be responsible for its vascular affinity.

Fig. 9.—Prepared for arsenic. Section from a patient twenty-four hours after an injection of arphenamine. This gives an idea of the amount of arsenic present around the arterioles and capillaries. Magnification, × 3,880.

Fig. 10.—Prepared for arsenic. Same section as in figure 9, showing a coil gland duct deep in the corium. Magnification, × 2,500.

Further study with other trivalent arsenicals should settle this point. Oral administration of quintavalent arsenicals and the changes produced in the molecule during passage through the intestinal mucosa in the process of absorption might account for their difference in localization as compared with that of arsphenamine. However, quintavalent arsenicals administered intravenously showed the same localization as did the same compounds given by the mouth. Further detailed study, including the study of arsphenamine administered by the mouth, is necessary before this question can be settled.

Several facts are now apparent regarding the excretion of arsenic by the skin. Following the administration of quintavalent arsenicals, the arsenic is exfoliated in the scales and excreted by the sweat and sebaceous glands. After the use of trivalent arsenicals, the arsenic is excreted by the sweat and sebaceous glands and is not present in the scales. Therefore, determination of the arsenic in the scrapings or scales after injections of arsphenamine are in reality estimations of the arsenic present in the sweat and sebum and not in the epidermis.

The effect of sodium thiosulphate on the arsenic in the cases of arsphenamine dermatitis is well shown. Unfortunately, tissues were not available to illustrate the effect on the arsenic in arsenical keratoses or pigmentation. The rapid disappearance of the arsenic in arsphenamine dermatitis was remarkable, except in the severe cases, in which the reduction in arsenic after the administration of sodium thiosulphate did not seem to be appreciable. This emphasizes the necessity of early and vigorous administration of the drug before severe vascular injury has occurred.

CONCLUSIONS

1. The method of microchemical determination of arsenic in tissue originally used by Justus [3] and modified by Brunauer [4] and myself [1] has been applied to a study of arsenical dermatitis and allied conditions.

2. There is a well defined difference in localization of the arsenic following certain trivalent and quintavalent arsenicals.

3. This difference in localization explains many of the clinical observations regarding these drugs, both as to the pathologic processes which they produce and their therapeutic action.

4. The effect of sodium thiosulphate on the arsenic in arsphenamine dermatitis is brought out.

5. A discussion is given of the significance of these observations.

---

3. Justus, J.: Ueber Arsenvergiftung auf Grund einer mikrochemisch-histologischen Methode, Dermat. Ztschr. **12**:277, 1905.

4. Brunauer, S. R.: Ueber mikrochemisch-histologisch Nachgewiesenes Arsen bei Hyperkeratosis Arsenicalis, Arch. f. Dermat. u. Syph. **129**:186, 1921.

ABSTRACT OF DISCUSSION

DR. J. FRANK SCHAMBERG, Philadelphia: The writer of the paper is to be commended for this excellent piece of scientific work. It seems to me that one of the most important conclusions he has arrived at is that trivalent arsenical compounds are chiefly deposited in the deep layers of the skin, particularly around the larger vessels, whereas pentavalent arsenic seems to be deposited in the superficial structures as in the epidermis. If this work can be confirmed, and I presume it will be, this may throw some light on the fate of arsenic in the human organism, which is still shrouded in mystery. Whenever there is an inflammatory or degenerative change in the organism following injection of the organic arsenicals, the question arises as to whether it is not due to some degeneration of the arsphenamine molecule. Voeghtlen of Washington has given us some evidence that arsphenamine acts in the system therapeutically as "arsenoxide." If further oxidation takes place, a pentavalent compound is produced instead of a trivalent compound, and it is conceivable that the arsenic might even be completely split off as an inorganic substance from the benzene ring.

Further studies along the line pursued by Dr. Osborne may throw much light on the fate of arsenic in the human economy.

DR. JOHN H. STOKES, Philadelphia: The difference in distribution of the arsenic in trivalent and pentavalent arsenical administration goes a long way to support the conception of vascular injury as the cause of exofoliative dermatitis, supported among others by the work of Moore. It is a fascinating suggestion that some cause, as yet unexplained, operates to prevent the combination of sodium thiosulphate with the perivascularly deposited arsenic as an explanation of the occasional failure of the former drug to affect favorably an arsenical dermatitis.

DR. FRED D. WEIDMAN, Philadelphia: I have examined two portions of skin with deposits of arsenic in them and would caution those who undertake this work to look carefully if they would see these granules, as they are very small. In the first specimen, I was undecided as to whether the particles were arsenic or artefact. In the second case, I ran a normal control in separate containers during fixation, the section being fastened to the same slide as the unknown for the final chemical treatments. Osborne's technic requires care, but it works.

DR. EARL D. OSBORNE, Buffalo: Regarding the method: In my original communication I went into all the details concerning this. I ran innumerable controls, and I would suggest that if any of you wish to use this method, which may be valuable in medicolegal matters, that you take a few rabbits and work with this tissue, which is easily available. You can run the controls and satisfy yourself better as to whether the arsenic is there or not. Dr. Ormsby told me that they had had success with the method in Chicago.

As to how long the arsenic remains in the skin without sodium thiosulphate being administered; we had twenty cases in which biopsies were taken at varying intervals while patients were receiving the drug. If a section of the skin is taken after the dermatitis has subsided, a small amount of arsenic will be found, but there will be some there for a long period. I do not know just how long. I should say that the amount of arsenic is proportionate to the severity of the dermatitis. The effect as seen in the microscope following the use of sodium thiosulphate is almost miraculous. Within four days after its administration, one can see very little arsenic, whereas if the sodium thiosulphate had not been used, one would have had just as much as before. We have had cases of arsenical pigmentation and keratosis in which we found arsenic in the skin from fifteen to twenty years after the use of arsenic had been discontinued.

BASAL SQUAMOUS CELL EPITHELIOMA*

HAMILTON MONTGOMERY, M.D.
Fellow in Dermatology and Syphilology, The Mayo Foundation
ROCHESTER, MINN.

The term "basal squamous cell epithelioma" is used to designate the transitional forms that occur between basal cell and squamous cell epithelioma. I shall undertake to show that these transitional forms occur frequently, and that their prognosis is serious as compared with basal cell epithelioma. To do this, I shall first review briefly the various aspects of basal cell and squamous cell epithelioma.

BASAL CELL VERSUS SQUAMOUS CELL EPITHELIOMA

Jacob, in 1827, first described what is clinically known as a rodent ulcer. Following Krompecher's work in 1900 and 1903,[1] these tumors became known as Basalzellenkrebse. Recently, Krompecher[2] coined the term Basaliome to include all basal cell growths, whether benign or malignant. By basal cell epithelioma, however, I refer only to his Basalzellenkrebse.

Various theories have been advanced at different times to explain the origin of basal cell epitheliomas, such as that they arise from the epidermis, hair follicles, sebaceous and sweat glands, rudimentary hairs and cell rests.[3] Dubreuilh and Auche[4] and Krebich,[5] just antedating

---

*Abridgment of thesis submitted to the faculty of the Graduate School of the University of Minnesota in partial fulfillment of the requirements for the degree of Master of Science in Dermatology. The work was begun in 1924 under the Hyde Memorial Fellowship in Dermatology, Rush Medical School, under the supervision of Dr. Oliver S. Ormsby, and completed when the author was a Fellow in Dermatology at the Mayo Foundation, 1925-1926.

1. Krompecher, E.: Der drüsenartige Oberflachenepithelkrebs, Beitr. z. path. Anat. u. z. allg. Pathol. **28**:1, 1910; Der Basalzellenkrebs, Jena, Gustav Fisher, 1903, p. 279.

2. Krompecher, E.: Zur vergleichenden Histologie der Basaliome, Ztschr. f. Krebsforsch. **19**:1, 1922.

3. Beadles, C. F.: Rodent Ulcer, Tr. Path. Soc. London **65**:176, 1894; Small Hyperplastic Growth from Sweat-Gland, ibid. **65**:183, 1894. Bidwell, L. A.: Rodent Ulcer Occurring in a "Birth-Mark," ibid. **65**:182, 1894. Bowlby, Anthony: Sixty-Six Cases of Rodent Ulcer, ibid. **65**:152, 1894; A Case of Six Rodent Ulcers in the Same Patient, ibid. **65**:163, 1894. Fordyce, J. A.: The Pathology of Malignant Epithelioma Growths of the Skin, J. A. M. A. **55**:1624 (Nov. 5) 1910. Fox, T. C.: Rodent Ulcer, Tr. Path. Soc. London **65**:174, 1894. Fox, W. T., and Fox, T. C.: Morbid Growths: Rodent Ulcer, ibid. **30**: 360, 1879. McDonagh, J. E. R.: A Classification and Description of the Cutaneous Epitheliomata, J. Cutan. Dis. **32**:11, 1914. Paul, F. T.: Rodent Ulcer, Tr. Path. Soc. London **65**:164, 1894. Spencer, W. G.: Rodent Ulcer, ibid. **65**:181, 1894. Walker, Norman: The Pathology of Rodent Ulcer, ibid. **65**:172, 1894.

Krompecher's articles, gave similar histologic descriptions without emphasizing the basal cell origin of the neoplasm. Krompecher's theory of the basal cell origin of these tumors was opposed, especially by Borrmann,[6] who maintained that they originated from epithelial rests and became united only secondarily to the epidermis. Krompecher admits this to be true in a few cases. Mallory[7] insisted that these epitheliomas originate from the matrix cells of hair follicles. Kyrle,[8] however, pointed out that benign basal growths arising from hair follicles are not to be confused with basal cell carcinoma. Krompecher's observations are generally accepted today and have been confirmed by many authors.[9]

That squamous cell epithelioma arises from the epidermis has long been accepted. Nissen[10] believed that it begins in the prickle cell layer. On the basis of the process of keratinization of normal epidermis, Adami[11] said that squamous cell epithelioma must also arise from the basal cell layers, as this is the actively growing part of the epithelium. That squamous cell epithelioma may arise from "squamous cells" is not possible, because, as Broders[12] has emphasized, cells that show signs of keratinization are not capable of further reproduction, and such cells in tumors are not active cancer cells.

Kyrle[8] explained the failure of the cells of the basal cell epithelioma to differentiate and become keratinized, as normal basal cells do, on the basis that the basal cell layer of the skin has two tasks to fulfill: to differentiate into pavement epithelium and to act as the matrix for postfetal formation of sebaceous glands without formation of squamous

---

4. Dubreuilh, W., and Auche, B.: De l'ulcus rodens, Ann. de dermat. et de syph. **32**:705, 1901.

5. Krebich, Karl: Zur Histologie des Ulcus rodens, Arch. f. Dermat. u. Syph. **62**:323, 1898.

6. Borrmann, Robert: Die Entstehung und das Wachstum des Hautcarcinoma, Ztschr. f. Krebsforsch. **2**:1, 1904.

7. Mallory, F. B.: The Principles of Pathologic Histology, Philadelphia, W. B. Saunders Company, 1914, p. 371.

8. Kyrle, Joseph: Beitrag zur Frage des Basalzellengeschwülste der Haut, Arch. f. Dermat. u. Syph. **121**:246, 1915-1916.

9. Bloodgood, J. C.: Tumors Benign and Malignant, Progrès méd. **4**:134, 1904. Clairmont, Paul: Diagnose und Therapie des Basalzellenkrebses, Arch. f. klin. Chir. **84**:98, 1907. Emley, S.C.: Carcinoma basocellulare, Boston M. & S. J. **150**:611, 1904. Janeway, H. H.: A Contribution to the Knowledge of the Early Stages of Epithelioma of the Skin, Ztschr. f. Krebsforsch. **8**:403, 1910.

10. Nissen, W.: Histogenetische Studien an einen Hautcarcinom, Ztschr. f. Krebsforsch. **21**:320, 1924.

11. Adami, G. J.: Textbook of Pathology, et. 2, New York, Lea & Febiger, 1914, p. 387.

12. Broders, A. C.: Cancer's Self Control, M. J. & Record **121**:133, 1925.

cells. When tumors arising from the basal cell layer grow as if for the fulfillment of the first task, squamous cell epithelioma arises; when they grow apparently for the second purpose, a basal cell tumor is formed. The lack of keratinization in basal cell epithelioma has also been explained on the basis of von Hansemann's theory of anaplasia or dedifferentiation.[13] In connection with this theory, Broders [12] said: "Basal cell epitheliomas control themselves by producing cells similar to the normal basal cells of the skin."

A basal cell epithelioma is a chronic, relatively slowly progressing ulcer with rolled, pearly, telangiectatic borders, and usually covered with a brownish crust, the removal of which causes bleeding. At times it appears as a pearly nodule which may ulcerate later. The ulcer may be superficial and cicatricial, or it may attain considerable depth. It may vary in size from a few millimeters to an extensive destructive lesion involving both cartilage and bone. Tables 2 and 3 show its distribution. Metastasis rarely, if ever, occurs. In contrast, squamous cell epithelioma runs a more rapid course and is prone to metastasize, although its malignancy varies greatly as Broders [12] has shown. It most frequently starts on the mucous membrane, or at the site of a previous verruca or scar, and is likely to be papillomatous or fungating. If ulcerated, the edges are often undermined, and the depth and induration are greater. At times, however, a neoplasm diagnosed clinically as rodent ulcer proves microscopically to be a squamous cell epithelioma.

Krompecher fully described the varied microscopic picture of basal cell epithelioma from the solid to the cystic form; in all of these, the characteristic basal cell-like tumor cell predominates (fig. 1). Finger-like projections occur sometimes in the cytoplasm of these cells, but pearl formation, even though incomplete, or the appearance of prickle cells in places, is not the picture belonging to a true basal cell epithelioma. The latter belong to the transitional group, which Darier and Ferrand [14] recently described as épithéliome métatypique.

Squamous cell epithelioma is characterized by its prickle cells, abundance of mitotic figures and tendency to cornification (pearl formation, figs. 2 and 3). Broders [12] divided these tumors into four groups according to their degree of differentiation and their tendency to pearl formation. The more malignant of these, namely, those graded 3 and 4, have at times been confused with rapidly growing basal cell epithelioma (Broders [15] also observed this); pearl formation is

13. Whitman, R. C.: Somatic Mutations as a Factor in the Production of Cancer, J. Cancer Research **4**:181, 1919; A Study of Four Cases of Beginning Squamous Cell Carcinoma of Cornifying Type, ibid. **5**:155, 1920.

14. Darier, J., and Ferrand, Marcel: L'épithéliome pavimenteux mixte et intermédiaire, Ann. de dermat. et de syph. **3**:385, 1922.

15. Broders, A. C.: Personal communication to the author.

practically lacking, and the cells have relatively little cytoplasm, imperfect spines, nuclei rich in chromatin and often only a single nucleolus (fig. 3). The low power microscopic picture is frequently suggestive of basal cell epithelioma in the arrangement of the cells.

MATERIAL FOR THIS STUDY AND CASES REPORTED

This study is based on the microscopic analysis of 119 consecutive cases of epithelioma of the skin proper in which sections were made in the laboratory of surgical pathology, Rush Medical College, Chicago, from January, 1915, to December, 1924. Thirteen of these cases were studied through the courtesy of Dr. D. B. Phemister, and two through the courtesy of Dr. C. W. Finnerud. Fifteen of these cases (12.6 per

Figure 1

Figure 2

Fig. 1.—Basal cell epithelioma showing basal origin, varied arrangement of the cells and lack of pearl formation.

Fig. 2.—Squamous cell epithelioma (graded 2) showing marked pearl formation and definite encapsulation of the tumor; × 50.

cent) were found to be transitional, and further sections were made. They were first diagnosed microscopically without knowledge of the clinical observations, and the histories were obtained later. In two of the cases, a history was not obtainable. Those cases in which the data were insufficient to prove epitheliomas of the skin proper were excluded, as were those starting on the mucous membrane. The benign Basaliome, which includes the multiple benign cystic epithelioma and the syringocystadenoma, was not included, nor was superficial epitheliomatosis or Bowen's or Paget's disease. It is to be emphasized that all fifteen cases showed an intimate connection and metamorphosis

between basal, intermediary and prickle cells, and that they were not examples of the rather rare superimposition of a squamous cell epithelioma on a basal cell tumor such as Bechet [16] described. As an incidental observation in one case of basal squamous cell epithelioma, there was also multiple superficial epitheliomatosis on the extremities and trunk; in another case, there was a squamous cell epithelioma of the hand as well as a transitional tumor of the face.

To define what a basal squamous cell epithelioma is I shall cite in detail the histories of three cases chosen from this series and that of a fourth case, not in this series, but which I was able to study in more detail. The sections were stained with hematoxylin and eosin. In several of the cases, the sections were stained with eosin methylene blue, van Gieson's connective tissue stain and Weigert's elastic tissue stain; serial sections were cut in cases 2 and 4.

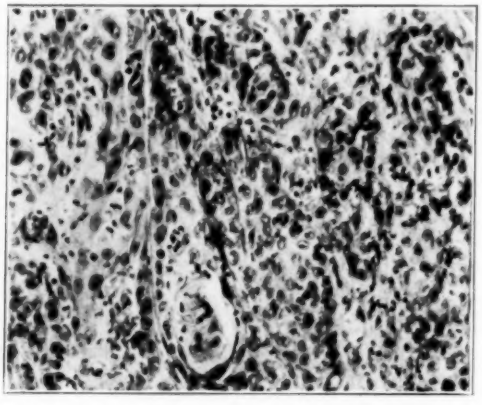

Fig. 3.—Squamous cell epithelioma (graded 3) with definite pearl formation only in center of picture; numerous cells with a single nucleolus and many mitotic figures are shown; × 100.

Case 1.—A man, aged 75, came to the Mayo Clinic in 1917 because of an epithelioma of the right cheek, which had started nine years before as a verrucous lesion. It had been diagnosed as a cancer of the skin and removed with plasters. The tumor recurred about 1911 and was excised, only to recur again. Treatment with an electric needle failed, as did also fifteen hours of treatment with radium given shortly before the patient's admission. The tumor was described in 1917 as a star-shaped, narrow, crusted lesion 5 by 0.4 cm., adherent to the maxilla and extending around the right nasal ala to the upper lip, which was swollen but not indurated. Following 950 milligram-hours of treatment with radium, the lesion healed, but it recurred shortly and increased in size. When the patient was seen in June, 1919, by Dr. Ormsby, the right side of the upper lip was absent, and the teeth and gums exposed. The ulceration

16. Bechet, P. E.: Manhattan Dermatological Society Meeting, Oct. 11, 1922, abstr., Arch. Dermat. & Syph. **7**:124 (Jan.) 1923.

extended up the cheek to midway between the lower eyelid and the angle of the mouth. Radiotherapy was employed from then until March, 1922, during which time several operations were performed by Dr. Phemister. On account of the involvement of the bone, the prognosis was unfavorable, and the lesion recurred frequently. The patient died in June, 1922, the cause of death not being known. Metastasis was not noted. Sections were available for study from two of the recurrent lesions.

Sections made on Dec. 15, 1920, from a small ulcerated area over the right maxilla showed the origin of the tumor from the epidermis. In places there were basal cells arranged in solid masses, with finger-like projections into a

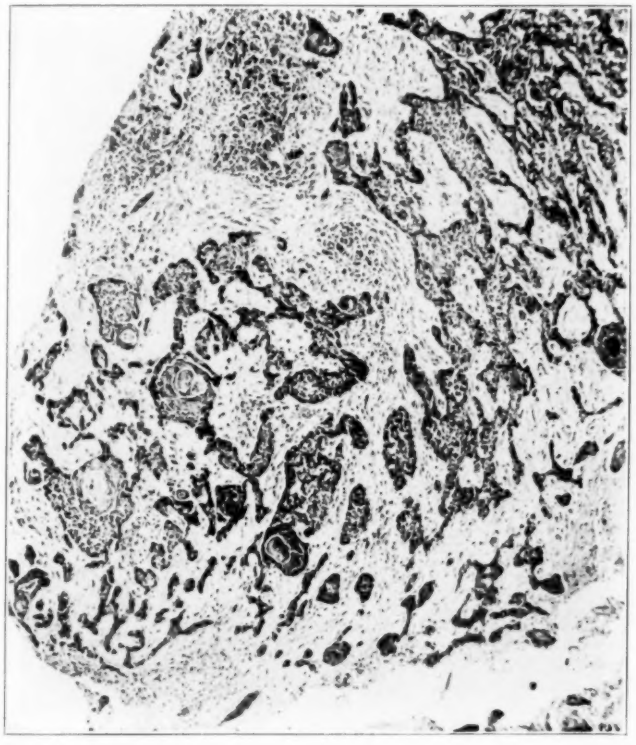

Fig. 4 (case 1).—Basal squamous cell epithelioma showing partial pearl formation, narrow strands of basal cells and lighter staining intermediary cells, degenerative changes of the connective tissue and cellular infiltration in upper left hand corner; × 60.

rather loose connective tissue. In the middle of some of these pearl formation was definitely beginning, but without complete keratinization and showing eosin-staining, colloid-like material in the centers of the pearls. A few isolated strands of prickle cells were seen, while in other areas the basal cells were arranged in glandlike and netlike formation. Here many of the cells were larger than the basal cells, with lighter staining, granular nuclei containing many nucleoli and with imperfect intercellular bridges; in other words, cells intermediary in character between basal and prickle cells. Mitotic figures were numerous

throughout the section. There was an infiltrate chiefly of plasma cells, which was more marked at the borders of the lesion, where it seemed to form a barrier to the tumor cells. Obliterating endarteritis and endophlebitis were present, together with homogenization of the connective tissue. The diagnosis was basal squamous cell epithelioma.

A biopsy made April 9, 1921, from an ulcer below the eye showed a marked acanthosis with long, broad, rete pegs. In one area, the continuity of the basal cell layer was broken, and here there were large prickle cells showing mitotic figures in an irregular pearl formation. The connective tissue showed homogenization and other degenerative changes; the walls of the larger blood vessels

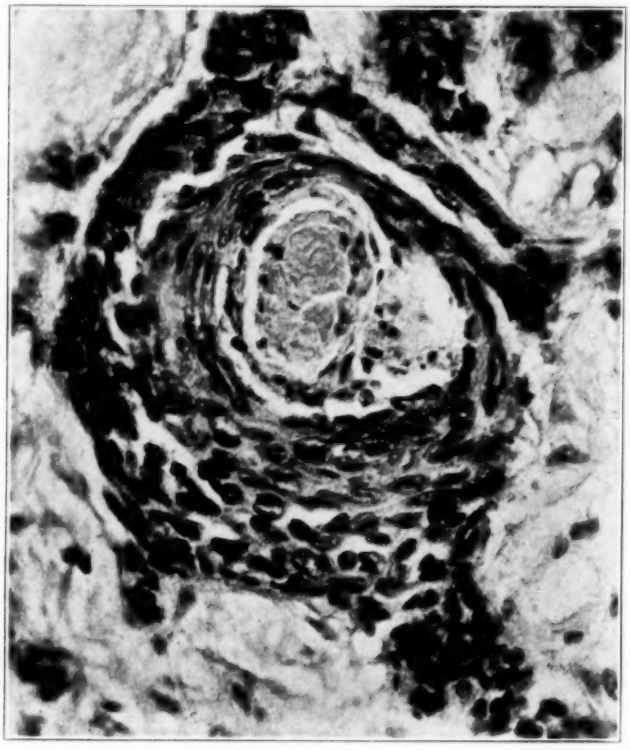

Fig. 5 (case 1).—High power magnification of pearl in figure 4 showing deeply staining basal cells, lighter staining intermediary and prickle cells; and colloidal center and lack of keratinization of the pearl; × 350.

were thickened, but there was marked capillary dilatation in the pars papillaris. Total destruction of the sebaceous glands had occurred, and only remnants of a sweat gland were seen. In other words, the picture was that of radiodermatitis with a beginning malignant change approaching a squamous cell epithelioma.

Well beneath this area of radiodermatitis and entirely separate from it was the recurrent tumor composed of clusters of cells connected by loose connective tissue and surrounded by dense connective tissue. The characteristic partial pearl formation is shown in figures 4 and 5; adjacent lobules show cystic degeneration. Narrow infiltrating bands of cells are seen composed of inter-

mediary as well as basal cells. The diagnosis was chronic radiodermatitis showing early malignant changes and, beneath this, a basal squamous cell epithelioma.

CASE 2.—A man, aged 43, was admitted to the Presbyterian Hospital, Chicago, in February, 1923, for treatment of a tumor of the scalp which had started eight years before. In 1920, the tumor had been removed surgically, but had recurred and grown rapidly. Radiotherapy or other treatment had not been carried out. A preoperative diagnosis of cancer was made. An attempt to follow the case was unsuccessful.

Fig. 6 (case 2).—Basal squamous cell epithelioma showing origin from basal cells of the epidermis, adjacent acanthosis, infiltrating strands of tumor cells in the lower right hand corner, dense cellular infiltrate in places, changes in the connective tissue and adjacent sebaceous gland; × 25.

Serial sections showed multiple points of origin from the basal cells of the epidermis (fig. 6). Ulceration occurred where the tumor growth was the greatest, with adjacent acanthosis of the epidermis. The tumor was composed of lobules and strands of epithelial cells, often with a glandlike arrangement and infiltrating into a rather dense connective tissue rich in nuclei (figs. 6 and 7). Deep in the section, the tumor cells were in narrow strands and also in solid masses. Here from partial to almost complete pearl formation occurred with adjacent cystic degeneration characteristic of basal cell epithelioma. Mitotic figures were numerous and metamorphosis of basal to intermediary to prickle cells was readily

seen. In places, there was fibroblastic proliferation; in others, marked degenerative changes in the connective tissue occurred. The elastic tissue showed degenerative changes as evidenced by irregular staining with Weigert's stain and a clumping and swelling of the fibrils. The diagnosis was basal squamous cell epithelioma.

CASE 3.—A woman, aged 79, was admitted to the Presbyterian Hospital, Chicago, in August, 1923, for treatment of an ulcer of the forehead. Ten years previously a small ulcer at the same site had been diagnosed as a basal cell epithelioma and treatment with roentgenotherapy had left a round, flat, pur-

Fig. 7 (case 2).—Taken from an area similar to that shown in the right hand lower corner of figure 6. Tumor cells invading through dense connective tissue are shown. Note the dark-staining strand of basal cells in the lower right hand corner, which arise from intermediary cells and have a beginning pearl at its distal extremity. Note also the definite prickle cells in places and the almost complete pearl formation in others; × 120.

plish scar. The scar remained healed for four years, only to recur and prove radioresistant. When the patient was seen in January, 1923, there was an irregular ulcer 2 cm. in diameter, with hard, rolled borders and inflamed periphery and attached to the bone. The diagnosis was basal cell epithelioma. Roentgen-ray treatment was given from January to August, but the ulcer increased slightly in size. At operation, in August, the periosteum was found to be involved. The case was not followed up.

The tumor lay below the epidermis, and the origin from the latter was not shown. The epidermis contained numerous dyskeratotic cells, and the corium showed all the changes characteristic of radiodermatitis. The character of the tumor cells (fig. 8) corresponded almost exactly to the intermediary cells described by Darier. They were in narrow strands and lying in loose areolar tissue in a netlike arrangement. Vacuolization of many of the cells was seen, and groups of cells were arranged in pearl formation with larger squamous-like cells in the center but without a colloidal center; in other words, a beginning pearl. Some of the cells were grouped in cuboidal arrangement to form a small

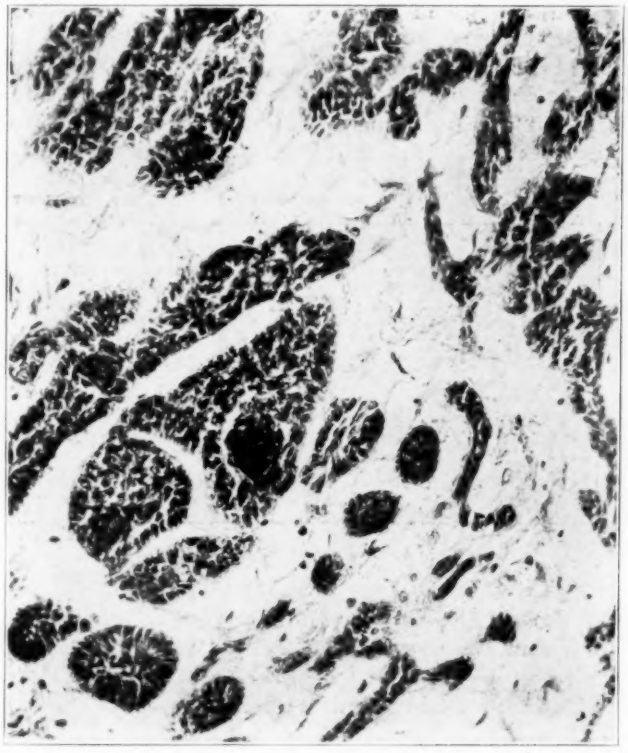

Fig. 8 (case 3).—Basal squamous cell epithelioma, intermediary type of Darier. Intermediary cells, many of which are vacuolated growing in a loose areolar tissue are shown. The dark-staining areas represent groups of from six to twelve or more larger cells arranged concentrically to form an early pearl; × 120.

cyst, not, however, a degenerative cyst. The diagnosis was basal squamous cell epithelioma (intermediary form of Darier).

CASE 4.—I first saw this patient, aged 73, in the Central Free Dispensary, Rush Medical College, Chicago, in March, 1924. Several recurrent epitheliomas were present. Four years before presentation, a crusted lesion in front of the left ear, of a year's duration, and a nodule over the right malar bone had been diagnosed basal cell epithelioma; the lesion on the left side was treated with radium and that on the right side scraped and treated with roentgenotherapy.

A hard swelling always remained over the malar bone. Four months before he came to the dispensary, this lesion became ulcerated and increased rapidly in size, as did also an ulcer which appeared in the scalp above the right ear. Radiotherapy had not been given for three and a half years.

Examination revealed a rather deep ulcer over the right malar bone, with indurated, rolled, pearly borders, and covered with a brownish crust, removal of which caused bleeding (fig. 9). In spite of its occurrence in scar tissue, the clinical appearance was that of a basal cell epithelioma. The ulcer in the scalp, a small ulcer in front of the left ear, and a pearly nodule on the forehead were also clinically basal cell epithelioma. Diagnosis was confirmed by two dermatologists. There were also a few lesions of senile keratoses on the dorsa of the hands and on the face. None of the lesions were of the type seen in multiple superficial epitheliomatosis. All the lesions responded readily to roentgen-ray treatment. The patient, whose case is illustrated in figure 9, was treated with two skin units of unfiltered roentgen rays, and this treatment was repeated a week later; the third week 2 skin units, filtered through 2 mm. of aluminum, were given. This treatment was repeated the fourth week but with

Fig. 9 (case 4).—In this case, the clinical diagnosis was basal cell epithelioma. The microscopic diagnosis was basal squamous cell epithelioma. The photograph was taken ten days after 2 skin units of roentgen-ray treatment and shows a wide zone of erythema from proper roentgen-ray treatment. The rolled pearly borders were more marked before treatment was started. The biopsy stitch is shown at the lower corner of tumor near the ear.

0.5 mm. of aluminum. The lesion healed, leaving a soft pliable scar; when the patient was examined two years later, no evidence of recurrences or metastasis was found. I was unable to observe the patient further.

Serial sections were made of the biopsy specimen which was taken before treatment was started (fig. 9). Multiple points of origin from the epidermis were evident (figs. 10 and 11), and at these points the tumor cells were at times basal and at other times frankly intermediary. Their origin was chiefly from the basal cells of the epidermis and also from the basal cells of the invaginated epidermis forming the outermost sheath of a hair follicle. The intermediary cells seemed at places to be arising from the matrix cells of a hair follicle, at others from the cells lining a sweat gland; but in all these instances, serial sections showed that the limiting membranes of the hair follicles, sebaceous glands and sweat glands were intact, and that only a secondary union was occurring.

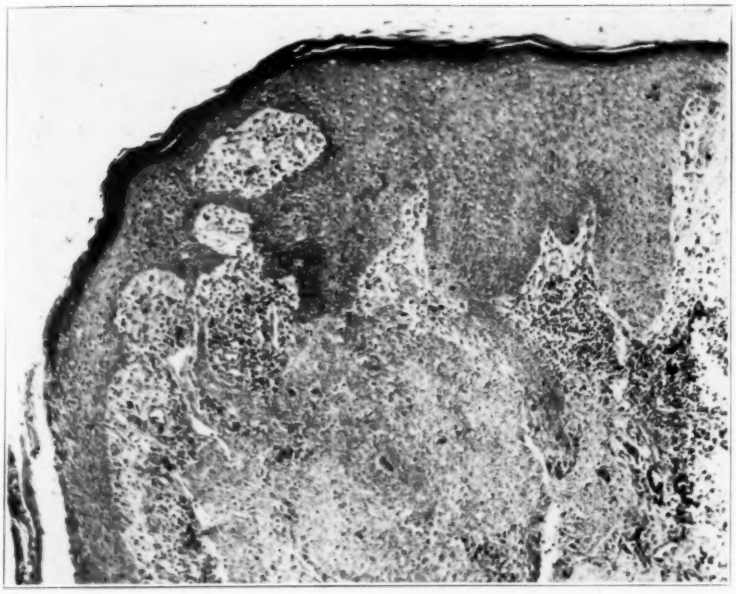

Fig. 10 (case 4).—Basal squamous cell epithelioma. The tumor is growing in solid mass from multiple points of origin. There is also marked cellular infiltration just beneath the epidermis; × 60.

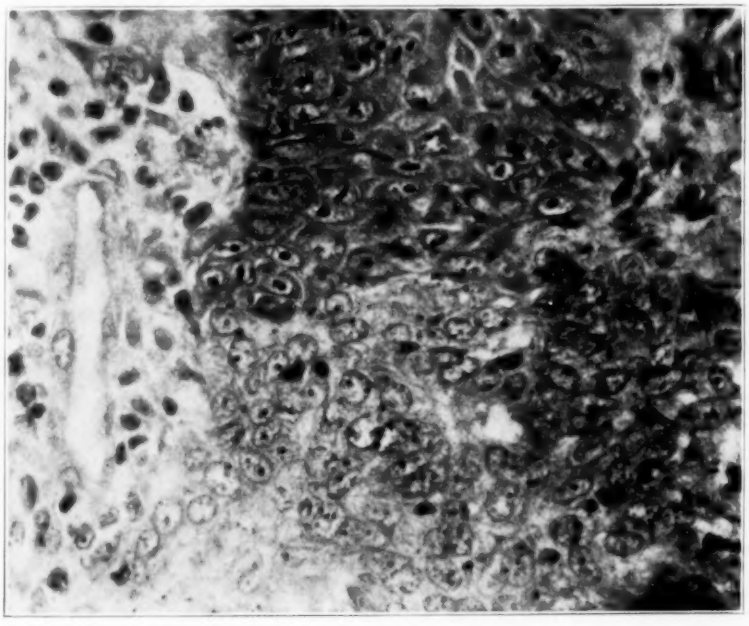

Fig. 11 (case 4).—High power magnification of area in figure 10, showing origin of intermediary type of tumor cell from the epidermis. They are the lighter-staining cells with multiple nucleoli and a suggestion of intercellular bridges. Mitotic figures are seen in both the prickle cells of the epidermis and the intermediary cells; × 350.

The tumor cells could be seen growing in solid strands or in a netlike arrangement (fig. 12). The growth extended deeply into the subcutaneous tissues, and there was marked lateral proliferation extending well beyond the epidermal margin of the tumor. Here an insidious infiltration of narrow strands of tumor cells was seen (fig. 12). Mitotic figures were numerous. In many places there was definite partial pearl formation with colloidal-like centers which stained brightly with eosin and showed a lack of keratinization (fig. 13). Metamorphosis from basal to intermediary to squamous cells was readily demonstrable. The lack of definition of the boundaries of the cytoplasm of many of the intermediary cells attested their malignant character. At times, imperfect intercellular bridges were found. The connective tissue showed homogenization and mucoid changes

Fig. 12 (case 4).—Area to the right of that represented in figure 10. It shows lateral and vertical infiltration of tumor cells beneath hypertrophied sebaceous glands, partial pearl formation, capillary dilatation in pars papillaris, dense areas of cellular infiltration, and an epithelial bud near the top center of the figure; × 30.

in some areas and fibroblastic proliferation in others. There was marked cellular infiltration by lymphocytes and plasma cells in places (fig. 10), but this did not appear to have any relation to the activity or degree of proliferation of the growth, as the tumor was apparently growing equally active whether lymphocytic infiltrate was present or not. There was sclerosis of the small blood vessels, together with capillary dilatation in the pars papillaris. With Weigert's stain,

the elastic fibers showed edematous swelling and degeneration in the areas in which changes of the connective tissue occurred. The elastic fibers occurred in clusters of curly coils between and overlying the tumor cells. There was an apparent increase in elastic tissue at the margins of the tumor; this was due, however, to edematous degeneration.

MICROSCOPIC APPEARANCE OF BASAL SQUAMOUS CELL EPITHELIOMA

The term basal squamous cell epithelioma is synonymous with the terms transitional epithelioma, épithéliome métatypique mixte and epithéliome

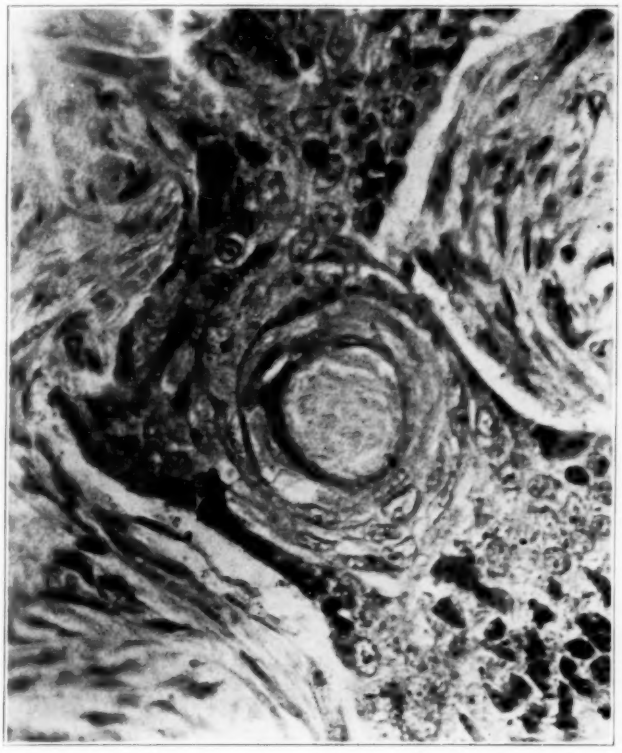

Fig. 13 (case 4).—One of the pearls shown in figure 12. There is multiformity of cell types and typical partial pearl formation with eosin staining colloidal-like center. The basal cells stain darkly in contrast to the intermediary cells. Fibroblastic proliferation and merging of the basal cells with the cells of the connective tissue are also seen; × 350.

métatypique intermédiaire. It has been created as being more descriptive and also to avoid confusion with tumors called mixed epitheliomas which are glandular carcinomas with squamous cell elements and have nothing to do with the skin proper. Krompecher [2] said, "Partial differentiation of basal epithelium into prickle cells occurs in about 5 per cent

of the Basaliome." Korbl [17] said that the transitional forms have a glandlike structure resembling a basal cell epithelioma, but that their cells are larger, richer in cytoplasm, and stain less intensely, thus approaching the prickle cell type and occasionally showing concentric arrangement and intercellular bridges. Darier [15] divided transitional epithelioma into two groups: épithéliome métatypique mixte and épithéliome métatypique intermédiaire. He said: "Épithéliome métatypique mixte has the structure of a basal cell epithelioma but it encloses epidermal globes (epithelial pearls). These pearls with a colloidal center and not horny, are without keratohyaline and may be called parakeratotic. There is, therefore, juxtaposition of basal cell and prickle cell tissue, but without complete keratinization." Darier and Ferrand emphasized that isolated cornified follicular cysts and mucous degenerating basal cell cysts are not to be confused with these pearls. In regard to the second type, they said: "Epithéliome métatypique intermédiaire is usually composed of a network of narrow strands made up of only two or three rows of cells. These are larger, lighter and better defined than the basal cells, but have neither the dimensions, the structure, nor the numerous plain filaments of unions of the prickle cell elements. They therefore have frankly intermediary characteristics. Moreover one may find parakeratotic pearls as in épithéliome mixte." They further said: "Their protoplasm is but slightly homogeneous, at times vacuolated. The nucleus is clear, spread out, budding and multiform with numerous nucleoli."

The four cases of the intermediary type in this series of fifteen cases show beginning pearl formation as well as Darier's intermediary cells. In case 3, the latter predominate; in other cases of transitional epithelioma, the partial pearl formation is the outstanding feature. From the clinical standpoint, there is apparently no difference in the malignancy of the two groups.

There are two practical points to be added to the histologic descriptions just given: 1. Many cases in this series show narrow strands of tumor cells infiltrating deeply into the tissues both laterally and vertically: clinically, therefore, a wider and deeper excision of a transitional epithelioma is necessary to insure complete removal than is the case in the average basal cell epithelioma or squamous cell epithelioma (grade 1 or 2), both of which are usually fairly well defined and circumscribed (fig. 2). 2. Transitional epithelioma should not be confused histologically with the malignant squamous cell epithelioma graded 3 or 4 (fig. 3). The prickle cells in the latter, though resembling basal cells, still show more definite spines than the cells of the intermediary type.

17. Korbl, Herbert: Die Röntgenbehandlung der Hautcarcinome speciell des Basalzellenkrebses sein histologisches Verhalten vor und nach der Bestrahlung, Arch. f. klin. Chir. **117**:752, 1912.

and are usually larger than these. They are characterized by a single nucleolus in contrast to the multiple nucleoli of the intermediary cell; also the colloidal center is not seen in the pearls. I wish to emphasize the necessity of carefully studying a thin, well stained section under high power magnification with dry lens in order to diagnose accurately a basal squamous cell epithelioma, a squamous cell epithelioma graded 3 or 4 and a basal cell epithelioma.

DISCUSSION OF HISTOLOGIC DATA

In the majority of cases in this series, a basal cell origin of the tumor could be demonstrated. The origin, therefore, parallels that of basal cell epithelioma.

The changes in the connective tissue were studied, especially in case 4. In figure 12, there is a group of basal cells forming an epithelial bud without any basement membrane, which suggests an early basal cell epithelioma. Degenerative changes in the connective tissue are seen beneath this area, but it could not be determined whether they preceded the epithelial changes. The adjacent normal epidermis did not show changes in the connective tissue beneath it. The merging of the basal cells with the connective tissue cells is shown in figure 13 and confirms Krompecher's [18] and Kettle's [19] observations regarding the polymorphism of the malignant epithelial cell.

The tumors were also studied in regard to the relationship of cellular infiltration and hyaline degeneration to their rapidity of growth.[20] All the fifteen cases showed more or less cellular infiltration, but it could not be seen that the degree or character of the infiltrate had any influence on the proliferation of the tumor cells or on the ultimate prognosis. In several cases, the infiltration appeared to be the result of secondary infection from the surface and did not occur in the depths of the tumor.

Bierich [21] said that in cancer an increase in the fibers of the connective tissue and elastin occurs prior to the epithelial changes. Later the

---

18. Krompecher, E.: Ueber die Beziehungen zwischen in Epithel und Bindegewebe bei den Mischgeschwülsten der Haut und der Speicheldrüsen und über das Entstehen der Karcinosarkome, Beitr. z. path. Anat. u. z. allg. Pathol. **64:** 88, 1908.

19. Kettle, E. H.: On Polymorphism of the Malignant Epithelial Cell, Proc. Roy. Soc. Med. (Section on Pathology), 1919, vol. 12, part 3.

20. Ketron, L. W.: Unusual Forms of Superficial Epitheliomas of the Skin, J. Cutan. Dis. **37:**22, 1919. Parkhurst, H. J.: The Tissue Reaction in Malignant Epitheliomas of the Skin, Arch. Dermat. & Syph. **6:**401 (Oct.) 1922. Powell, L. D.: The Relationship of Cellular Differentiation, Fibrosis, Hyalinization and Lymphocytic Infiltration to Postoperative Longevity of Patients with Squamous Cell Epithelioma of the Skin and Lip, J. Cancer Research **7:**371, 1922.

21. Beirich, H.: Ueber die Beteiligung des Bindesgewebes bei der Experimentellen Krebsbildung, Virchows Arch. f. path. Anat. **239:**1, 1922.

elastin disappears in the tumor proper but is increased at its borders. In cases 2 and 4, the elastin at the margins of the tumors was apparently increased, but this was a degenerative swelling rather than true proliferation. On the basis of this series of cases, therefore, I cannot add anything regarding the etiology of cancer. I may say, however, on the basis of histologic studies, that these transitional epitheliomas represent a metamorphosis from basal cell epithelioma to squamous cell epithelioma and are not degenerative forms of the latter.

METASTATIC BASAL CELL AND BASAL SQUAMOUS CELL EPITHELIOMA

Korbl [17] cited a case (case 53) of a basal cell epithelioma with metastasis as a squamous cell epithelioma. His illustration (figure 18 of his article) of a biopsy of the original lesion shows early pearl formation and accords with my conception of a basal squamous cell epithelioma. In this way, I would venture to consider it a basal squamous cell epithelioma metastasizing as a squamous cell epithelioma. He cites a second case of a pure basal cell epithelioma with lymphatic metastasis as such, and a third case of a rodent ulcer of the cheek, histologically transitional, which healed following radiotherapy, only to recur in three years and show metastasis to the submaxillary gland. Biopsy of the glands was not carried out. All three cases were clinically diagonsed as basal cell epithelioma. Darier reported one case of multiple epithelioma of the scalp, with an almond-sized, lymphatic, metastatic nodule in the nape of the neck, both histologically épithéliome métatypique. In a second case of transitional epithelioma of the face, metastasis appeared in the submaxillary gland. Biopsy was not made of the metastatic tumor. Janeway [22] reported a case of basal cell epithelioma of the nose with basal cell metastasis to the hard palate seventeen years later. He also described a tumor diagnosed clinically as a basal cell epithelioma of the cheek which healed under roentgen-ray treatment, only to metastasize to the preauricular lymph node; this contained squamous cells as well as basal cells.

Two of the fifteen cases in the series herein recorded as examples of metastatic basal squamous cell epithelioma were previously recorded by Finnerud [23] as metastatic basal cell epithelioma. Even disregarding these two cases, Korbl's case (case 53) and Darier's case show that basal squamous cell epithelioma may metastasize as such or metastasize as a squamous cell epithelioma.

---

22. Janeway (footnote 9, fourth reference).

23. Finnerud, C. W.: Metastatic Basal Cell Carcinoma from the Skin: Report of Two Cases, J. A. M. A. **82**:775 (March 8) 1924.

Is there such a thing as a pure metastatic basal cell epithelioma? Finnerud found only one histologically proved case in the literature (Beadles'[24] case). Janeway's[22] case and Korbl's case (case 6) may also be considered as proved cases. Broders,[14] in his microscopic study of about 6,000 cases of epithelioma over a period of twelve years, has yet to find a case of metastatic basal cell epithelioma. Therefore, if the latter occurs, it does so rarely. Careful histologic examination will prove practically all such metastatic tumors to be either transitional or squamous cell in character.

Literature Regarding Transitional Forms.—American textbooks on dermatology tend to treat basal cell and squamous cell epitheliomas as separate and distinct entities, and none even mentions a transitional type. Textbooks on pathology mention that transitional forms occur occasionally. Bloodgood,[25] and later Hazen,[26] under the title of "Cubocellular Carcinoma," described tumors resembling rodent ulcers, but which were prone to metastasize, and which occurred in 4 per cent of a series of 468 cases of epithelioma. The cells they described are devoid of prickles, and there is no pearl formation. From the histologic descriptions, they would seem to belong to Darier's intermediary form.

In contrast to these views, the Fox brothers,[27] in 1879, recognized the occurrence of transitional forms. Krompecher has excellent microscopic illustrations of the latter in all his articles. Clairmont[28] and Korbl[17] divided skin cancer into three groups: basal cell cancers, squamous cell cancers and transitional forms. Roussy and Wolf,[29] Kettle[30] and Engman[31] emphasized the occurrence of transitional forms. Engman further stated that a basal cell epithelioma through various factors may become a squamous cell epithelioma. Broders[32] has long recognized the occurrence of transitional forms, but has grouped the latter in his statistics either as basal cell or as squamous cell epithelioma, depending on which type of cell predominated. It remained, however, for Darier and Ferrand,[15] in 1922, to emphasize the frequency

24. Beadles (footnote 3, first reference).

25. Bloodgood (footnote 9, first reference).

26. Hazen, H. H.: Skin Cancer, St. Louis, C. V. Mosby & Co., 1916, pp. 81-83.

27. Fox, W. T., and Fox, T. C. (footnote 3, sixth reference).

28. Clairmont (footnote 9, second reference).

29. Roussy, Gustav; and Wolf, Maurice: Le cancer, Paris, Masson et Cie, 1922, p. 341-742.

30. Kettle, E. H.: The Pathology of Tumors, New York, Paul B. Hoeber, 1916, p. 116.

31. Engman, M. F.: External Cancer, J. A. M. A. **84**:103 (Jan. 10) 1925.

32. Broders, A. C.: Basal Cell Epithelioma, J. A. M. A. **72**:856 (March 22) 1919.

with which these transitional forms occur. More recently, Frieboes,[33] Golay [34] and Jadassohn [35] described transitional epithelioma.

Radiotherapy As a Factor Causing Basal Squamous Cell Epithelioma.—Korbl says he has seen a basal cell epithelioma change to a squamous cell epithelioma only following radiotherapy. A study of his case reports, however, reveals that several of his transitional tumors were definitely such microscopically before radiotherapy was employed and, in a few cases, before treatment of any kind was used. He discussed four cases, two of basal cell and two of transitional cell epithelioma, which, following roentgenotherapy, recurred as squamous cell epithelioma in three instances and as a transitional tumor in one of the cases of basal cell epithelioma.

Cole [36] recently reviewed the subject of dermatosis produced by the roentgen ray and Wolbach [37] and Colwell and Russ [38] studied the microscopic picture of radiodermatitis. The fifteen cases in this series were carefully studied for microscopic evidence of radiodermatitis or of malignant changes resulting from radiotherapy. Case 2 (figs. 6 and 7), in which radiotherapy was not administered, and case 4 (figs. 10 to 13), in which radiotherapy had not been given for three and a half years, showed changes usually associated with radiodermatitis but without atrophy of the dermal glands. In case 1, radiodermatitis with early malignant changes was evident, yet below the area where these were seen was a recurrent transitional epithelioma showing similar vascular changes and changes of the connective tissue. In the two cases of metastatic basal squamous cell epithelioma in this series, roentgen-ray treatment was carried out with rays of sufficient intensity and penetration according to present knowledge to effect a cure. History of any burn as the result of treatment was not reported. The original metastatic growths were transitional, as were also the primary tumors at the time metastasis occurred. In one of the cases biopsy of the original tumor was carried out before any roentgenotherapy was used, and the tumor proved to be transitional. It may be concluded, therefore, that basal squamous cell

33. Frieboes, Walter: Grundriss der Histopathologie der Hautkrankheiten, ed. 2, Leipzig, F. C. W. Vogel, 1924, p. 208.

34. Golay, J.: Épithéliome mixte cicatrisé par les rayons X, Rev. med. de la Suisse Rom. **64**:176, 1924.

35. Jadassohn, J.: Demonstration von selteneren Hautepitheliomen, Beitr. z. klin. Chir. **136**:345, 1926.

36. Cole, H. N.: Chronic Roentgen-Ray Dermatoses as Seen in the Professional Man, J. A. M. A. **84**:865 (March 21) 1925.

37. Wolbach, S. B.: The Pathologic Histology of Chronic X-Ray Dermatitis and Early X-Ray Carcinoma, J. Med. Research **21**:415, 1909.

38. Colwell, H. A., and Russ, Sidney: Radium X-Rays and the Living Cell, ed. 1, London, G. Bell and Sons, 1915, p. 324.

epithelioma is a microscopic entity not necessarily the result of radiotherapy, although the latter may be a factor in increasing the malignancy of a tumor in some cases.

COMPARISON OF THE CLINICAL OBSERVATIONS IN KORBL'S, DARIER'S AND THIS SERIES OF CASES

Korbl, and later Darier, are the only ones that have tried to differentiate clinically the basal squamous cell epithelioma in a series of cases. In tables 1, 2 and 3, their observations are compared with mine and also with Broders' series of microscopically proved cases of basal cell [32] and squamous cell epithelioma.[39] In only 12 per cent of my cases in table 1 is the tumor transitional epithelioma as against 24 per cent in Korbl's series; but, considered on the basis that these transitional forms represent a metamorphosis of basal cell epithelioma, if in each series the number of transitional and basal cell epitheliomas are added together, it is found

TABLE 1.—*Relative Percentage Occurrence of Different Types of Epithelioma of the Skin*

Type of Epithelioma	Percentage in Present Series of 119 Cases from Surgical Pathologic Laboratory	Percentage in Darier's Series of 100 Cases in Dermatologic Practice	Percentage, Chiefly of Rodent Ulcer, in Korbl's Series of 70 Cases
Squamous cell	63.02	50	13
Basal squamous cell	9.24	10	(No subdivision)
Intermedary type	3.33	5	24
	12.60	15	
Basal cell	24.38	35	63

that of such a grouping 34 per cent of my cases, 30 per cent of Darier's cases and 29 per cent of Korbl's are basal squamous cell in character. From table 2 it is evident that from one third to one half of the latter are diagnosed clinically as squamous cell epithelioma. It may be concluded, therefore, that in a group of basal cell epitheliomas, diagnosed clinically as such, from 15 to 20 per cent will probably prove to be transitional on microscopic examination.

Darier's fourth group of budding epithelioma (basocellular bourgeonnant) were soft, button-like tumors having a jelly-like consistency, with superficial ulceration at times. His other three groups were indistinguishable clinically from basal cell epithelioma. Korbl stated that usually the transitional epitheliomas have lost the typical flat or slightly raised form of a rodent ulcer, and appear as ulcerated plateaus with drooping or overhanging borders. He called this type ulcus elevatum, but many of these, according to his histologic descriptions were typical basal

39. Broders, A. C.: Squamous Cell Epithelioma of the Skin, Ann. Surg. **73:** 141, 1921.

cell epithelioma. In my series, most of the cases were of the deeper, more mutilating type of ulcer and none was of the superficial cicatrizing type.

The site of the tumor in the three series parallels that of basal cell epithelioma (table 3) with a predilection for the nose or its immediate vicinity. In all three series there was frequently a history of a tumor which, without treatment, had remained dormant for many years (in one

TABLE 2.—*Clinical Data in the Three Series of Basal Squamous Cell Epithelioma Compared with Broders' Series of Basal Cell and Squamous Cell Epithelioma*

	Percentage in Present Series of 15 Cases	Darier, 25 Cases	Korbl,* 24 Cases	Broders' Basal Cell, 268 Cases	Broders' Squamous Cell, 256 Cases
Diagnosis of basal cell epithelioma	60%	58%	60%	....	....
Ulcer	85%	58%	80%	....	....
Nodule	15%	42%	20%	....	....
Percentage above clavicle	85%	88%	95.8%	90%	78%
History of preceding lesion	38.5%	....	29.6%	37.1%	51.17%
Average age at onset	54 yr.	....	58 yr.	56.7 yr.	59.34 yr.
Earliest age at onset	20 yr.	....	19 yr.	23 yr.	25 yr.
Average duration	8.5 yr.	....	4.5 yr.	7.5 yr.	4.8 yr.
Longest duration	26 yr.	23 yr.	18 yr.	45 yr.	35 yr.

* More cases are thus included than appear in table 1.

TABLE 3.—*Site of Election of Basal Squamous Cell Epithelioma*

	Broders, 268 Cases, Basal Cell Epithelioma, per Cent	Darier, 25 Cases, Epitheliome Metatypique, per Cent	Present Series, 13 Cases, per Cent	Korbl, Compiled from Case Histories (24 Cases)* per Cent	Total of the 3 Groups in 62 Cases of Basal Squamous Cell Epithelioma, per Cent
Cheek	23.5	20	30.76	20.9	22.4
Eyelids	20.52	..	15.38	....	3.2
Nose	19.02	48	7.79	29.2	32.0
Forehead	6.71	16	7.79	25.0	16.0
Ear	5.22	..	.....	....	....
Canthi	4.85	..	.....	8.3	3.2
Scalp	6.71	4	7.79	....	3.2
Angle of jaw	1.11	..	.....	....	....
Chin	1.49	4	.....	....	1.6
Upper lip (skin proper)	2.98	..	7.79	12.4	6.4
Lower lip (skin proper)	0.37	..	7.79	....	1.6
Arms	0.37	..	15.38	....	3.2
Legs	0.37	8	.....	....	3.2
Trunk	2.98	..	.....	....	....
Neck	2.98	4	.....	4.2	3.2

* More cases are thus included than appear in table 1.

case for twenty-three years), only to double or triple in size in a few weeks or months. (In 40 per cent of my cases, there was a history of sudden increase in rapidity of growth.) Darier and Ferrand, however, do not find this rapid increase in size of absolute diagnostic value, as they have not seen a transitional form in subsequent biopsies on cases presenting this feature. In many cases they believe the original tumor was basal cell in character, and only later became an épithéliome métatypique.

DIAGNOSIS AND TREATMENT

Biopsy.—Since these transitional epitheliomas cannot be diagnosed clinically with any certainty, biopsy is necessary for a positive diagnosis. Both Darier and Korbl emphasize the necessity of a biopsy for the accurate diagnosis and proper treatment of all epitheliomas. Darier recommended the examination of a large specimen, as a transitional tumor may otherwise be missed. In all the cases in this series, however, there was an intimate connection between basal and transitional cells within a narrow field. Ewing,[40] though he warned against indiscriminate biopsy, said: "The removal of a small carefully selected portion of a readily accessible tumor seldom results in any harm." Wood [41] cited experimental evidence in animals to prove that the dangers of biopsy are overestimated.

A small specimen, such as can be obtained by the use of a skin punch, can be fixed in Zenker's fluid or formaldehyde, embedded in paraffin, and cut and stained in less than three days; or, following formaldehyde fixation for a few hours, frozen sections can be cut and stained and a diagnosis made possible in from twelve to twenty-four hours. Ordinary frozen sections such as are used for immediate diagnosis are not satisfactory for diagnosing transitional epithelioma; this requires a careful study of a thin, well stained section under the high power lens with dry objective.

Results of Surgical and Radiotherapeutic Treatment in Basal Squamous Cell Epithelioma.—Korbl's results with roentgen-ray treatment are of little value for comparative studies, as they antedate modern measured roentgen-ray dosage. By using roentgen-ray treatment with the Coolidge tube and measured dosage, 83 per cent of McKee's [42] patients and 84 per cent of Hazen's [43] were cured for three years; these were in two series of unselected cases of basal cell epithelioma diagnosed clinically as such. Darier says that a transitional epithelioma is often first recognized because of its resistance to the usual doses of roentgen rays used for basal cell epithelioma; however, a pure basal cell epithelioma may be radioresistant.

In eight of the transitional cases in this series (out of thirteen for which there was a clinical history), modern intensive treatment was carried out with roentgen rays or radium. The lesions all occurred on the

---

40. Ewing, James: The Diagnosis of Cancer, J. A. M. A. **84**:1 (Jan. 3) 1925.

41. Wood, F. C.: The Experimental Pathology of Cancer, J. A. M. A. **84**: 4 (Jan. 3) 1925.

42. McKee, G. M.: X-Rays and Radium in the Treatment of Diseases of the Skin, Philadelphia, Lea & Febiger, 1921, p. 602.

43. Hazen, H. H., and Whitmore, E. R.: The End-Results in Roentgen-Ray Treatment of Cutaneous Cancer, Am. J. Roentgenol. **13**:144, 1925.

face. Six of the cases had been diagnosed clinically as basal cell and two as squamous cell epithelioma. All eight proved to be more or less radioresistant; three responded to radiotherapy, but the neoplasm recurred shortly and proved radioresistant. Biopsy of the original lesion was not made in these three cases. In all eight cases, surgical treatment was undertaken as a last resort because of the failure of radiotherapy. In contrast, the tumor in case 4 responded as quickly to roentgenotherapy as an ordinary basal cell epithelioma of the same extent, and the lesion has remained healed for two years.

Data in regard to the surgical treatment of patients with basal squamous cell epithelioma are meager. Korbl had one case in which cure had persisted for one year after operation. Clairmont [28] reported a case in which surgical treatment only was used in which recurrence had not occurred in three and a half years. Darier and Ferrand strongly advised operative removal when possible. In my series, inability to follow up some of the cases and the short time that has elapsed since operation in others do not permit the making of a final analysis. In six cases there was a history of recurrence after operation, in three of which it was to be expected because of the involvement of the bone. In the other three cases, operation failed because the excision was not wide enough in view of the insidious infiltration of the tumor cells as previously described. In one of the two metastatic cases, metastasis recurred twice after operation in the vicinity of the submaxillary gland.

Recurrence in this series following radiotherapy or surgical treatment, or both, occurred in from a few months to four years; therefore, five years rather than three should be the criterion for a cure. Data are not available in regard to treatment of basal squamous cell epithelioma with fulguration, electric desiccation or diathermy.

CONCLUSIONS

1. Basal cell epithelioma is not a morphologically closed entity, but may, through metamorphosis, become a basal squamous cell epithelioma or even a squamous cell epithelioma.

2. Transitional epitheliomas, presenting features of both basal cell and squamous cell epithelioma, occurred in 12.6 per cent of a series of 119 cases of epithelioma of the skin, and have been grouped under the name basal squamous cell epithelioma. They represent a metamorphosis of basal cell epithelioma to squamous cell epithelioma and are not degenerative forms of the latter.[44]

---

44. Broders and I have seen basal squamous cell epitheliomas arising from the mucous membrane of the lips and penis, and Krompecher has found basal cell epithelioma with transitional characteristics wherever he has found basal cell cancers.

3. In a series of basal cell epitheliomas diagnosed clinically as such, from 15 to 20 per cent on microscopic examination will probably prove to be transitional in character.

4. The microscopic picture of basal squamous cell epithelioma is characteristic and diagnostic, but may be confused with a malignant squamous cell epithelioma grades 3 or 4 unless a thin, well stained section is carefully studied.

5. The origin of basal squamous cell epithelioma from the epidermis is shown.

6. Basal squamous cell epithelioma, as a rule, is not the result of roentgenotherapy, although the latter may be a factor in increasing the degree of malignancy of a tumor.

7. In 60 per cent of the cases these transitional epitheliomas are indistinguishable clinically from basal cell epitheliomas, the distribution and course of which they tend to approximate.

8. A positive diagnosis can be made only by microscopic examination. The dangers of biopsy have been overemphasized in the past.

9. Basal squamous cell epithelioma may occasionally metastasize as such, and the metastasis remain for years, or it may metastasize as a squamous cell epithelioma.

10. Most if not all cases of so-called metastatic basal cell epithelioma on microscopic examination will prove to be basal squamous cell or squamous cell epithelioma.

11. Basal squamous cell epithelioma, in the majority of cases, is relatively resistant to roentgen-ray and radium treatments as compared with basal cell epithelioma. Radiotherapy should be used only as a last resort in the treatment in these cases.

12. Surgical treatment, with an unusually wide excision because of the insidious infiltration of the tumor cells, is indicated whenever possible.

13. The prognosis in these cases of transitional tumor must be guarded. They correspond to the more malignant of the grade 2 squamous cell epitheliomas.

14. The epitheliomas are prone to recur. Five years should elapse without recurrence before a cure is pronounced.

CHRONIC PARONYCHIA *

J. H. SWARTZ, M.D.
Assistant Dermatologist, Massachusetts General Hospital; Assistant in Dermatology, Harvard Medical School
BOSTON

By way of introduction to subsequent reports, in this paper I purport to describe the laboratory observations in twelve cases of chronic paronychia, the type seen in housewives, domestic workers and dish washers. This particular subject has been little investigated, as can be judged by the scarcity of literature written both here and abroad. Shelmire,[1] in his interesting report on "Thrush Infections of the Skin," described the observations of a thrush (?) organism in five cases. In 1909, Forbes,[2] in England, reported the finding of thrush in the nails of a child aged 3½ years. This child had stomatitis, and the same organism was isolated from the mouth. In 1924, Braxton Hicks and Chopping [3] reported the finding of *Blastomyces* in a woman. MacCormac's [4] article in the October, 1927, issue of the *British Journal of Dermatology and Syphilis* reported the finding of *Oidium albicans* in two cases of paronychia; both patients were women.

The organism referred to in this report was found in twelve cases of thirteen examined. A number of nails that did not show any evidence of paronychia were examined, and no trace of the organism was found. In searching for this organism, scrapings from the affected part of the nail were treated with potassium hydroxide 40 per cent, heated and allowed to clear.

In this paper, I do not intend to claim this organism as the etiologic factor. Further investigation will be carried on to ascertain whether these observations meet Koch's postula. However, at present, the fact that the same organism is constantly found in this condition at least makes it worth while to investigate further its etiologic possibility. In a later paper, I hope to describe this organism more in detail as to its cultural characteristics and biochemical reactions. Dr. Dodge, my former teacher of mycology at Harvard University, has been kind enough

---

* From the Skin Department of the Massachusetts General Hospital.

1. Shelmire, B.: Thrush Infections of the Skin, Arch. Dermat. & Syph. **12**:789 (Dec.) 1925.

2. Forbes: Brit. J. Dermat. **21**:221, 1909.

3. Hicks, J. A. B., and Chopping, F. R.: A Case of Paronychia Due to Blastomyces, Lancet **1**:128, 1924.

4. MacCormac, H.: Brit. J. Dermat. & Syph. **39**:394 (Oct.) 1927.

Fig. 1.—The nails of the first patient examined. The second and fourth fingers were chiefly involved.

Fig. 2.—The type of mycelium and spores found in the scrapings, on microscopic examination. Growth on Sabouraud's media was obtained on about the fourth or fifth day.

Fig. 3.—The growth when one week old. The colonies are elevated, fairly circumscribed and creamy white.

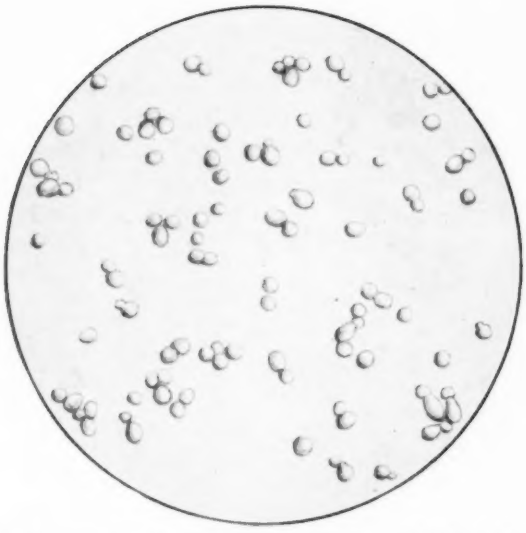

Fig. 4.—The microscopic observations in a smear obtained from the culture illustrated in figure 3. Note the variation in size and shape of the spores, the tendency to grouping in threes, fours and fives, the elongation and the budding.

Fig. 5.—A growth about four weeks old; it shows the presence of aerial hyphae. On microscopic examination, it showed the observations as in figure 4 with the additional presence of a few scattered mycelial threads.

to check up on my laboratory observations and agrees with me that the organism falls in the class of *Monilia*.

If this organism is the etiologic agent in this infection now known as chronic paronychia, the terminology will have to be changed, since the primary involvement is in the nail proper and not in the soft tissue about the nail, where the organism is absent. The paronychia is probably a secondary reaction.

CONGENITAL SYPHILIS

A REVIEW OF ONE HUNDRED AND NINETY-TWO CASES FROM A RURAL COMMUNITY WITH A COMPARISON OF TWO METHODS OF TREATMENT *

R. H. McBRIDE, M.D.
IOWA CITY

The data on which the majority of the articles that deal with hereditary syphilis are founded have been collected in urban clinics. For this reason, it seems that a report dealing with this subject in a rural community will be of value. The difficulties to be met and the method of treatment are somewhat different from those of an urban clinic. A review of the cases observed in this clinic during the last ten years will be presented.

INCIDENCE

The incidence of hereditary syphilis has been variously estimated from 1 to 5 per cent, its prevalence being in inverse proportion to the social status of the group studied. The 192 cases which comprise this series were distributed among 5,671 patients, giving an incidence of 3.03 per cent. The majority of these patients were of the indigent class. The incidence in the population at large cannot be accurately computed since, for a time, a small number of the syphilitic children who came to this hospital were treated in another department and also because those who entered other services for other maladies have recently been concentrated in this department for antisyphilitic treatment. It is probable that the incidence of syphilis in all the children admitted to the University Hospital is less than 3 per cent.

FAMILY HISTORY

Table 1 illustrates the available data concerning the Wassermann reaction of the parents in forty-eight of the 150 families included in this study. A negative history for both parents was obtained in eighty-seven additional families. Data are not available as to the condition of the parents in the other fifteen families. A personal interview would probably have elicited a positive history in some of these parents. Many of the histories were submitted by the local social worker and therefore were inadequate in many cases and entirely lacking in others.

In table 2 are shown certain data concerning siblings. Of the seventy-seven deaths, forty-five were fetal. These forty-five occurred in

* From the Department of Pediatrics, College of Medicine, State University of Iowa.

twenty families whose total number of conceptions was 103, giving a fetal mortality of 43.6 per cent in these families. In ninety-four families there are no data concerning the dead children or interrupted pregnancies. In the remaining forty-six families, fetal deaths are denied.

From table 3, showing the conditions which caused the patients to seek treatment, it is evident that for the most part these cases fall into two general groups: (1) those whose symptoms are too distressing to be overlooked by the parents; (2) those whose condition was diagnosed

TABLE 1.—*Wassermann Reactions of the Parents in Forty-Eight Families*

	Number Positive	Number Negative	Not Done	Total
Mothers	39	4*	5	48
Fathers	14	12	22	48

* These children were 10 years, 5 years, 4 years and 2 months of age, respectively.

TABLE 2.—*Data Concerning Siblings*

Under treatment	36
Known not to be infected	43*
Condition unknown	77
Known to be dead	77

* One is a twin of a syphilitic child.

TABLE 3.—*Conditions Which Caused the Patient to Seek Treatment*

Latent syphilis	90
Interstitial keratitis	38
Secondary lesions	20
Spastic paralysis	13
Malnutrition	8
General paralysis	5
Hydrocephalus (with convulsions)	2
Osteoperiostitis	2
Arthritis	1

by routine examination. The less annoying symptoms, such as saddle nose, Hutchinson's teeth and rhagades, seldom if ever bring children to us for treatment.

Other conditions such as alopecia, purpura and stomatitis account for the remainder of those whose entrance complaint is stated.

CLINICAL EVIDENCE OF SYPHILIS FOUND

The stigmas of syphilis do not differ in this group from those reported by other observers. Table 4 illustrates the prevalence with

which various signs were noted. It is of interest to note the large number of children who have interstitial keratitis, also the large number who are without stigmas.

The group of neurosyphilitic patients is of sufficient interest to warrant a short discussion. One hundred and eight patients were studied with reference to the Wassermann reaction of the spinal fluid. Of these, twenty-two or 20.3 per cent gave a positive reaction. Five members of this group were admitted to the hospital with well developed paralysis; another child developed paralysis during a long course of intensive treatment. Remission was not produced in any of these cases. They were all steadily progressive. With one exception, the remainder of the patients with neurosyphilis who received adequate treatment were

TABLE 4.—*Secondary Lesions*

Secondary lesions (rash and snuffles)	26
Saddle nose	15
Rhagades	8
Hydrocephalus	2
Epiphysitis	2
Convulsions	2
Malnutrition	4
Interstitial keratitis	41
Periostitis	10
Hutchinson's teeth	10
Deafness	7
Spastic paralysis	7
Chorioretinitis	3
Alopecia	1
Paresis	6
Hutchinson's triad	1
No stigmas	52
No physical examination recorded	22

cured. The exception was an infant who entered the hospital at 7 months of age. He was treated intensively for two and one-half years, but at the last observation the cerebrospinal fluid gave a positive Wassermann reaction, and a cell count revealed 190 cells per cubic millimeter. In general, these patients required a greater amount of treatment than those without cerebrospinal involvement. The prognosis is good and a negative blood Wassermann reaction is usually obtained, but neither paralysis nor impaired mentality is improved by treatment. When paralysis has developed, the prognosis is apparently hopeless. We have not had a case of tabes under observation.

ACQUIRED SYPHILIS IN CHILDREN

Four cases of acquired syphilis were encountered in this series. Three older children presented the usual primary lesion; the other, an infant, aged 3 months, developed a chancre of the lip. Her blood

Wassermann which had been negative when she was 2 months old became strongly positive. The child was fed at the breast of its mother who had secondary syphilis.

TREATMENT

It is a difficult matter to say when a patient with syphilis is cured. Therefore, we have chosen, for the purpose of discussion, to consider a patient cured when the Wassermann test of the blood has become negative and remained so, and when no further activity of the infection is manifest. It is my practice, however, to treat each infant for at least one year and older children for from one and one-half to two years, and to give three or four courses of treatment after the Wassermann test of the blood has become permanently negative.

In this series of cases three antisyphilitic agents, arsenic, mercury and bismuth, have been employed. Mercury has been used in the form of mercuric chloride intramuscularly, blue ointment by inunction and mercury with chalk by mouth. There has been little uniformity in the dosage of mercury due to the irregularity, as to both the frequency of administration and the amount given. Bismuth has been used only a short time, and no conclusions can be drawn from these cases as to its efficiency as an antisyphilitic agent. The dosage of arsphenamine has remained relatively constant throughout the series, from 20 to 25 mg. of sulpharsphenamine or neoarsphenamine per kilogram of body weight being used as a standard dose. Since an arsphenamine product is the only drug which has been used consistently, it will be used as a basis for the discussion of treatment.

Two methods of treatment have been employed. They may be spoken of as the intensive and the moderate method of treatment. The moderate method consists of six injections of arsphenamine given at weekly intervals. An occasional injection of mercuric chloride was interspersed between these treatments. At the conclusion of the course, a rest period of from three to six months was given. During this rest period, the patient was instructed to take inunctions of mercury. The amount of mercury taken under such circumstances is always uncertain.

While this system was in use, 121 patients came under observation. Their records show the following: twelve or 9.9 per cent were not treated; sixty-six or 54.54 per cent were insufficiently treated; four or 3.3 per cent were adequately treated but still gave a 4 plus reaction (three had neurosyphilis; one a girl had keratitis which was breaking); four or 3.3 per cent are still under treatment; thirty-five or 28.76 per cent were cured.

The number of treatments necessary to effect a cure ranged from six to fifty-eight with an average of 17.1 per patient; the patient requiring fifty-eight treatments was suffering from neurosyphilis. The largest number required by a child without neurosyphilis was thirty-nine.

This patient was a boy, aged 9 years, with interstitial keratitis who reported at such long intervals that his course of treatment extended over a period of five years.

The intensive method differs mainly in that the interval between the treatments has been shortened, thus giving a much more intensive course of treatment. The program in this method is as follows: Three injections of arsphenamine are given at forty-eight hour intervals, and an injection of bismuth is given at the time of the first and third treatment. This course is followed by a rest period of six weeks, during which the patient takes mercury with chalk in suitable doses by mouth. At the end of the six weeks, the course is repeated. The first day arsphenamine and bismuth are given; the third day, arsphenamine, and the fifth day, arsphenamine and bismuth. There is a six week interval during which mercury with chalk is given.

It will be noted that with this system much more intensive treatment is carried out. It has also been found that there is a greater tendency for the patients to maintain their schedule when they come under observation frequently than when the interval between courses of treatment is long. This method of treatment has been in vogue for a shorter period, having been used but two and one-half years. During this time, seventy-one patients were admitted. Three, or 4.22 per cent, were not treated; thirty-four, or 47.88 per cent, are still under treatment; fifteen, or 21.12 per cent, failed to return and were insufficiently treated, and nineteen, or 26.76 per cent, are cured.

The Wassermann reaction in many of those who are still under treatment has become reduced in strength, and a complete cure may be effected shortly. The average number of treatments necessary to effect a cure by this method is 11.23 per patient, the extremes being from three to thirty-five treatments; the latter number was required by a boy, aged 10 years with interstitial keratitis.

It seems justifiable to assume that the intensive method is more effective than the former method of treatment. The amount of arsphenamine required is about 65 per cent of that required by the former method. Since the course of the disease is cut short, the opportunity for the development of some serious complication, such as keratitis, deafness or periostitis is materially diminished.

IRREGULAR CASES

It seems probable that all patients with hereditary syphilis with the exception of a portion of those with neurosyphilis may be cured if treated adequately. The amount of treatment necessary to effect a cure is, in general, inversely proportional to the age at which treatment is initiated and the intensity with which it is given. There are, however,

certain patients who require a much larger amount of treatment than the average. The cause of this refractivity is obvious in some cases; in others it is obscure. The following is a group of refractory cases:

E. W., girl, aged 10 years; neurosyphilis, fifty treatments, no response.

K. M., boy, aged 7 months; neurosyphilis, sixty-eight treatments, no response.

E. H., boy, aged 6 years, with latent syphilis who returned at long intervals, twenty-four treatments; negative cerebrospinal fluid; no response serologically.

L. B., girl, aged 5 years; periostitis; twenty-seven treatments, no response serologically; negative cerebrospinal fluid.

F. F., girl, aged 10 years; interstitial keratitis; twenty-one treatments, no response serologically; negative cerebrospinal fluid.

M. H., girl, aged 10 years; interstitial keratitis; thirty treatments; no response serologically; negative cerebrospinal fluid.

D. E., girl, aged 3 weeks; no obvious lesion, twenty-seven treatments; no response serologically; negative cerebrospinal fluid.

There are other patients who required thirty or more treatments before the Wassermann test of the blood became negative, and it is thought that this group, with the possible exception of the first two, will be cured if treatment is continued.

REACTION DUE TO TREATMENT

Any system of antisyphilitic treatment which is sufficiently active to produce the desired results in the average case is not without danger. In this series, hemorrhagic encephalitis has occurred following treatment in two instances. One fatality occurred before the usefulness of thiosulphate in heavy metal poisoning had been described. It followed six injections of neoarsphenamine given at weekly intervals. The other occurred following three injections of sulpharsphenamine given at forty-eight hour intervals. The child recovered following the administration of sodium thiosulphate with the usual supportive measures.

The most frequent untoward symptom that I have encountered is arsenic dermatitis. It developed only after sulpharsphenamine had been given. After it has once developed, it is prone to recur with subsequent administration of the same drug, although some children are able to tolerate neoarsphenamine or arsphenamine after having been thus sensitized. Others are sensitive to all arsenic preparations. Severe dermatitis may be averted if thiosulphate is given when the rash first appears. This complication has not been encountered in the cases in which neoarsphenamine has been used.

SUMMARY

A group of 192 cases of syphilis in childhood has been reviewed. As a result of this study, it has been concluded that:

1. All patients with congenital syphilis, with the exception of a portion of those with neurosyphilis, probably can be cured.

2. Part of the patients with neurosyphilis can be cured, but when symptoms of paralysis in children have developed, we have been unable to establish a remission.

3. Sulpharsphenamine in the cases observed has produced dermatitis more frequently than the other arsphenamine preparations.

4. Intensive treatment at short intervals has proved more effective than treatment at long intervals.

5. The treatment now given is for the first day, arsphenamine and bismuth; for the third day, arsphenamine, and for the fifth day, arsphenamine and bismuth. This is a convenient method of treatment when patients are drawn from a large area, thus making residence away from home necessary for the duration of treatment.

6. With the intensive method a cure has been effected with approximately 65 per cent of the treatment necessary when the moderate method of treatment was used. The duration of the disease is also decreased, thus lessening the chance of developing a serious syphilitic complication.

LYMPHATIC LEUKEMIA OF THE SKIN WITH UNIVERSAL EXFOLIATING ERYTHRODERMA*

WILLIAM P. BOARDMAN, M.D.

BOSTON

Although lesions of the skin are not uncommon in cases of leukemia, according to the literature, the type characterized by a universal exfoliating erythroderma is distinctly rare. This fact seems to justify the report of the following case in which the condition was exhibited.

REPORT OF A CASE

History.—W. L. H., an American widower, aged 53, a carpenter, was first seen on April 16, 1925, with the present illness which had begun fifteen months before as a rash on the body, especially on the chest. It disappeared in a short time, but broke out again on the chest about five months previously and had since spread to the rest of body and extremities; during the last week the face and scalp were involved. The eruption was now universal. Swelling of both groins had been noticed coincident with the rash. Severe itching occurred although it varied somewhat in intensity. Constitutional symptoms were not noted. There was no noticeable loss of weight. The appetite and digestion were good.

Physical Examination.—The skin was universally reddened, firm and rather thickened with the natural folds exaggerated and covered everywhere with thin, white, dry, easily detached scales. Some oozing was noted in the folds where the scales had been detached and to a lesser degree on the legs. The face and especially the eyelids were swollen, but the edema was firm and rather brawny. The teeth were poor, and there was marked evidence of pyorrhea. The heart showed a soft systolic murmur at the apex; it was not transmitted. The liver was felt four fingerbreadths below the costal margin and the spleen, two fingerbreadths below; the edge of both was sharp and hard. The spleen was not tender. Edema was not noted in the extremities. The knee jerks were active. The glands were markedly enlarged in the axillary, femoral and inguinal regions and slightly enlarged in the neck; they were hard but not fused or tender, and were the size of a marble in the axillae and the size of the fist in the groin. The arteries were palpable. The blood pressure was 130 systolic and 75 diastolic. A roentgenogram of the chest showed fibrosis at the apexes of both lungs, but the mediastinum was within normal limits. Urinalysis revealed a specific gravity of 1.016, no albumin or sugar. Occasional hyaline and fine granular casts and rare red blood corpuscles were noted. The phenolphthalein excretion was 50 per cent in two hours and ten minutes. The blood nonprotein nitrogen was 44 mg. per hundred cubic centimeters. The blood sugar was 0.102 per hundred cubic centimeters.

The red cells numbered from 4,080,000 to 4,760,000; the hemoglobin content was from 77 to 81 per cent; the white count from 45,100 to 56,000. The differential count revealed polymorphonuclears, from 16 to 22 per cent; lymphocytes, from 63 to 78 per cent; eosinophils, from 6 to 10 per cent, and endothelial cells, 1 per cent. The platelets were distinctly diminished (172,000). Many of the cells classed as lymphocytes were larger than the normal lymphocyte, and some sug-

* From the Department of Diseases of the Skin, Boston City Hospital.

gested cells of acute leukemia. The hematologic diagnosis made by Dr. R. C. Larrabee was true leukemia or mononucleosis secondary to lesions of the skin. The Wassermann test of the blood was negative. The basal metabolism was plus 30.

Treatment.—Sodium thiosulphate was given intravenously and was followed by considerable relief from itching. The roentgen ray was applied only once. A solution of potassium arsenite caused exaggeration of the symptoms. Various mild ointments were applied locally. Most relief seemed to follow the use either of liquid petrolatum or of lard.

A biopsy of the skin of the abdomen was made by Dr. Mallory and the condition diagnosed as lymphoblastoma of the skin.

The patient went home on June 2, 1925. His condition was about the same as when he entered the hospital. He was seen a few months later at the State Infirmary at Tewksbury and at this time showed considerable emaciation and weakness. The skin was still scaling, but the scaling was fairly well controlled by ointment. The skin felt firm and thickened. It was pink, but there was beginning jaundice. The hair was completely gone. The jaundice became more intense, and weakness and loss of weight continued. On several occasions the blood was about the same as previously reported. On Nov. 2, 1925, while sitting in a chair, the patient suddenly collapsed and died. Autopsy was performed seven hours post mortem by Dr. Arthur K. Drake, through whose courtesy I was able to follow the case after the patient came to the State Infirmary.

Postmortem Examination.—The head was not examined. The lungs showed old adhesions and consolidations at the apexes. The heart was not remarkable and weighed 262 Gm. The weight of the liver was 1,950 Gm. The spleen weighed 360 Gm. and was firm and dark red. The kidneys weighed 250 Gm.; slight puckering was noted at the pole of the right kidney. The retroperitoneal glands were moderately enlarged.

The microscopic report by Dr. F. B. Mallory was as follows: lymphoblastoma involving the nodes, liver, spleen, testes and bone marrow; miliary tubercle in the liver and the spleen.

The following description of the lesions is kindly furnished by Dr. Frederic Parker, Jr.: Only the organs showing tumor were described. The tumor consisted of small round cells with round nuclei, agreeing in type with the cells of the lymphoblastoma or lymphosarcoma group. Mitotic figures in the tumor cells of this case were not frequent.

The pulp throughout the spleen showed considerable increase in connective tissue. The germinal centers were poorly defined. Foci of cells suggesting tumor cells occurred here and there in the pulp. There were also a few miliary tubercles.

There was marked infiltration of tumor cells in the portal areas of the liver, which increased the width of these areas to several times their normal size. This infiltration occurred in practically all portal regions. The bile ducts persisted apparently uninjured in the midst of the tumor cells. A few of the liver cells contained vacuoles (probably fat).

The normal markings of the lymph node were entirely destroyed by an infiltration of tumor cells. A few miliary tubercles were present.

The skin showed focal collections of tumor cells rather sharply confined to the regions of the corium immediately below the epidermis. These cells occurred especially around the smaller blood vessels; they did not invade the epidermis. The coil glands were free from tumor cells. In one area a hair follicle had some tumor cells around it. The epidermis showed a slight degree of keratinization.

In the testes there was one small focus of tumor near the epididymis. A few small areas of tumor cells were seen in the bone marrow.

In order to ascertain the relative frequency of skin lesions in cases of leukemia, I went over the records of all kinds of cases of leukemia at the Boston City Hospital for the past ten years and found among sixty cases, twenty-seven showing skin lesions of some sort while at the hospital. By far the most common lesions were hemorrhages, either alone or in conjunction with other skin manifestations, which were seen in nineteen cases; they varied from minute petechiae to large hematomas. These were about as frequent in the myelogenous cases (30 per cent of the total cases and about two thirds of those showing skin lesions) as in the lymphatic cases (25 per cent of the total cases and five eighths of those showing skin lesions).

Among the myelogenous cases there were also observed occasional pigmentations, papules and nodules and also furuncles, paronychias and other pus infections, but altogether there were only eight cases with skin manifestations besides the hemorrhages, or 22 per cent of the total number of cases. There was a pathologic report in only one case, and that was a nodular case in which true leukemia of the skin was present.

Among the lymphatic cases, the skin lesions in addition to the hemorrhagic ones were still fewer; one patient showed slight jaundice; one herpes of the lips and profuse general hyperhidrosis; one a general bronzing of the skin with a pigmentation over the scapula and one a general dryness of the skin with some scaling and petechiae on the forehead and legs.

A review of the literature showed that Biesiadecki [1] was the first to describe leukemic tumors of the skin. Since then a great deal has been written on the subject, and the skin lesions in leukemia have been placed in two distinct categories, those which are microscopically true leukemic infiltrations and those which are found in leukemia, but which pathologically are not different from the same lesions found in other patients who are not suffering from leukemia. The most common type of this second variety is the hemorrhagic lesion, as shown in the small collection of the cases from the Boston City Hospital. This collection of cases also shows the variety of these hemorrhagic lesions from the pinhead petechial type to the large subcutaneous hematomas. They may occur anywhere on the skin or mucous membrane of the mouth. They are more common in myelogenous than in lymphatic leukemia, but are still more frequently observed in the acute large cell type, being present in every case of leukemia of this type recorded

1. Biesiadecki: Leukaemische Tumoren der Haut, Wien. med. Jahrb. **3**:233, 1876.

in the series from the Boston City Hospital. Shattuck [2] has called attention to hemorrhagic blebs in one case of leukemia with purpura. These purpuric lesions are supposed to be caused by toxic injury to the blood vessel walls in most cases, but are sometimes seen in combination with true leukemic infiltration of the skin with injury to the capillaries and small vessels by the cellular infiltration. In this same class of nonleukemic lesions of the skin besides the ones mentioned, one finds recorded in the literature pruriginous lesions, especially of the face and extensor surfaces of the extremities, often with minute vesicles at the summit of the lesions and frequently associated with secondary eczematous lesions due to scratching. Levin [3] mentioned urticarial lesions and urticaria papulosa and severe pruritus without visible lesions. There is also a nonleukemic exfoliating dermatitis. All of these nonleukemic lesions of the skin have been called leukemids to distinguish them from the other type, which is true leukemia of the skin. They have also been observed in other diseases involving the lymphatic structures, such as general glandular tuberculosis and Hodgkin's disease and occasionally in other chronic diseases, such as chronic nephritis and diabetes. As these lesions occurring in a patient with leukemia are probably merely an external expression of a toxemia and are in no way like leukemia of the skin, the term leukemid is a misnomer, as Highman has remarked, and this term should be dropped.

Among the types of true leukemia of the skin the more common form is the nodular type. This starts as small papules which increase in number and size. They are often found in combination with macular lesions or plaques, as in the case mentioned in this series. Closely resembling these are the cases with tumors, often in combination with the nodular lesions. The tumors are most commonly seen about the face, but are also observed on the extremities, especially the extensor surfaces, and the breasts, and in some cases are rather generally distributed. Such cases have been observed in myelogenous leukemia (Ketron and Gay,[4] Burckhardt [5]), but are rare in that type. In the nodular case of myelogenous leukemia found in going over the records of the Boston City Hospital the patient showed a practically normal blood, but the skin and internal organs showed myelogenous leukemia at autopsy, aleukemic myelogenous leukemia. Tenenbaum [6] quoted a case

2. Shattuck, F. C.: A Case of Lymphatic Leukemia and Purpura, J. Cutan. Dis. **22**:118 (March) 1904.

3. Levin: Leukemid, Arch. Dermat. & Syph. **11**:843 (June) 1925.

4. Ketron, L. W., and Gay, L. N.: Myeloid Leukemia of the Skin, Arch. Dermat. & Syph. **7**:176 (Feb.) 1923.

5. Burckhardt, J. L.: Zur Frage der akuten myeloiden Leukaemie, Frankfurt. Ztschr. f. Path. **6**:169, 1911.

6. Tenenbaum, J. L.: Myeloid Leukemia of the Skin, Arch. Dermat. & Syph. **10**:557 (Nov.) 1924.

in which the blood showed a myelogenous pseudoleukemia. These nodular and tumor cases are much more common in lymphatic leukemia and pseudoleukemia (Nicolau,[7] Hazen,[8] Bernhardt,[9] Linser,[10] Arndt,[11] Winfield,[12] Dencker-Christian,[13] Schwartz and Busman,[14] Symmers,[15] Clark,[16] Trager,[17] Sweitzen [18] [questionable aleukemia]).

Heinrich,[19] reported a case of psoriatic lesions with lymphatic leukemia complicated by syphilis. The skin showed leukemia in the biopsy, but the lesions responded to treatments of iodide of potash. A recent paper by Larrabee and Sidel [20] shows the possibility of a leukemoid blood picture in syphilis, and it seems possible that Heinrich's case was entirely syphilitic.

More or less atrophy of the skin has been observed in connection with nodular and scaling leukemia of the skin by Bernhardt in three cases, all of the lymphatic type. Wise [21] reported this in a peculiar case apparently of aleukemic myelogenous leukemia with combined nodular and general exfoliative changes in the skin. More or less

---

7. Nicolau: Contribution a l'étude clinique et histologique des manifestations cutanées de la leucémie et de la pseudoleucémie, Ann. de dermat. et syph. **5**:753, 1904.

8. Hazen, H. H.: Skin Changes in the Leukemias and Allied Conditions, J. Cutan. Dis. **29**:521 (Oct.) 1911.

9. Bernhardt, Robert: Ueber die Leukämie der Haut, Arch. f. Dermat. u. Syph. **120**:17, 1914.

10. Linser, Paul: Beitraege zur Frage der Hautveränderungen bei Pseudoleukämie, Arch. f. Dermat. u. Syph. **80**:3, 1906.

11. Arndt, G.: Leukämische und aleukämische Lymphadenose der Haut, Dermat. Ztsch. **18**:1, 1911.

12. Winfield, James F.: Multiple Lymphoid Tumors of the Skin, J. Cutan. Dis. **31**:245, 1913.

13. Dencker-Christian: Case of Extreme Leukemic Infiltration of the Mammary Gland and Skin, J. A. M. A. **56**:417 (Feb. 11) 1911.

14. Schwartz and Busman: Leukemia Cutis, Arch. Dermat. & Syph. **10**:798 (Dec.) 1924.

15. Symmers, Douglas: Association of Certain Cutaneous Lesions with Diseases of the Hemopoietic System, J. Cutan. Dis. **39**:1, 1919.

16. Clark: Case for Diagnosis: Leukemia? Arch. Dermat. & Syph. **8**:281 (Aug.) 1923.

17. Trager, J.: Tumors, Face, Lymphatic Leukemia, Bratisl. lekár-listy. **4**:443, 1925.

18. Sweitzer, S. E.: Leukemia Cutis, J. A. M. A. **67**:1511 (Nov. 18) 1916.

19. Heinrich, Arthur: Ein Fall von Leucemia Cutis mit syphilisähnlichen Hauterscheinungen und positive Wassermann reaktion, Arch. f. Dermat. u. Syph. **103**:202, 1911.

20. Larrabee, Ralph C., and Sidel, Nathan: A Leukemoid Blood Picture in Syphilis, Boston M. & S. J. **196**:730 (May 5) 1927.

21. Wise, Fred: Lymphadenosis Cutis Universalis Associated with Generalized Erythrodermia and Atrophy of the Skin, J. Cutan. Dis. **35**:669 (Oct.) 1917.

localized, scaling, psoriatic and eczematous lesions have been noted by Bernhardt in a case of chronic lymphatic leukemia with papillomatous growths on the extremities which progressed to pustules and gangrene. The biopsy showed lymphoma of the cutis.

As already stated, the type of universal exfoliating erythroderma is unusual. Cases have been reported in which it was associated with chronic lymphatic leukemia by Riehl,[22] Arndt[11] von Zumbusch (2 cases),[23] Ketron and Gay,[24] Wile,[25] and Keim;[26] also cases in which it was associated with pseudoleukemia (Nicolau, Linser, Bernhardt, Sequeira and Panton[27] and Walzer).[28] Rodler-Zipkin[29] reported one case in which it occurred with leukemia which was probably of the acute type. Similar skin conditions clinically were reported by Sequeira in two cases of chronic lymphatic leukemia, but pathologically these cases showed merely inflammatory changes. In several of the cases of erythroderma there were papillomas about the hands and feet; Bernhardt's case is the only one in which there was atrophy. Including my own case with the foregoing, I found twelve cases of universal exfoliating erythroderma in leukemia, the majority being of the chronic lymphatic type, though some showed only pseudoleukemia when first observed. Seven of the patients were men, three were women and in two the sex was not stated. The oldest patient was 63 and the youngest 41. The latter was the only one under 53 and the average age was 56. In the patients who had died when the cases were reported, the duration of the disease varied from five months to six years, the average being two and one-third years. Severe itching is practically the only subjective symptom mentioned in most cases. Most of the patients showed considerable loss of weight toward the end of the disease, but this was not noted in several. A number of the patients complained of continual chilliness. Two noted excessive perspiration. Jaundice was noted in a few, and at postmortem examination this was found, in one or two cases, to be due to pressure of enlarged glands on the bile ducts.

---

22. Riehl, G.: Ueber Leukemia Cutis, Zweiter Internat'l. Dermatalog. Kongress, Wien, 1892, p. 156.

23. Von Zumbusch, Leo: Erythrodermia (pseudo) leucaemica (Riehl), Arch. f. Dermat. u. Syph. **124**:57, 1917.

24. Ketron, L. W., and Gay, L. N.: Universal Leukemia of the Skin, Bull. Johns Hopkins Hosp. **34**:404 (Dec.) 1923.

25. Wile, U. J.: Leukemia Cutis, Arch. Dermat. & Syph. **8**:876 (Dec.) 1923.

26. Keim, H. L.: Universal Leukemia Cutis, Arch. Dermat. & Syph. **10**:579 (Nov.) 1924.

27. Sequeira, J. H., and Panton, P. N.: Lymphoblastic Erythrodermia, Brit. J. Dermat. & Syph. **33**:390 (Dec.) 1921.

28. Walzer: Dermatitis Exfoliativa (Lymphatic Leukemia), Arch. Dermat. & Syph. **10**:100 (July) 1924.

29. Rodler-Zipkin, R.: Fall von akuter, grosszelliger, lymphatischer Leukämie mit generalisierter Hauterkrankung, Virchows Arch. f. path. Anat. **197**:135, 1909.

The microscopic picture is fairly uniform. The epithelium does not show anything characteristic. Sometimes there is a hyperkeratosis and sometimes a thinning of the horny layer. Parakeratosis with edema of the rete and spaces containing lymphocytes often is fairly constant. The principal changes are in the corium. The reticular layer shows a massive infiltration of lymphocytes. This infiltration is rather sharply circumscribed below, but extends deeper around the blood vessels and glands. The hair follicles and sebaceous glands are usually almost completely destroyed, but the sweat glands persist and are thickly surrounded by the infiltration. The smaller veins and arterioles and capillaries are closely surrounded by the infiltration and often packed with lymphocytes. The infiltration consists chiefly of cells of the lymphocytic series, some authors finding chiefly the small round cell and others a larger type. Some cases show fairly numerous mitoses, while these are rare in other cases.

In regard to the cause of death in the present case, in the absence of demonstrable pathologic changes in the heart, it seems fair to assume that there was a massive cerebral hemorrhage. I regret to say that the head was not examined. Nicolau reported cerebral hemorrhage with hemiplegia in one of his cases. Fried [30] published a report of a case of a patient with lymphatic leukemia who died of cerebral hemorrhage; this author found thirty cases of cerebrospinal involvement in lymphatic leukemia. In some of the cases there was degeneration similar to that found in pernicious anemia and in others lymphomas causing stasis in the capillaries or disintegration of the vessel walls by invasion of the lymphatic growths.

The observation of lymphatic nodules in the brain, where lymphatic tissue is not normally present, brings up the question of the source of the lymphocytes in lymphadenosis of the skin. Pinkus,[31] following Ribbert,[32] supported the autochthonous theory, claiming that foci of lymphocytes are ubiquitous. But this theory is not supported by any good evidence. Arndt and others maintained that the lymphocytes may arise from lymphocytes in the adventitia of the walls of the blood vessel or by metaplastic changes of the endothelial cells of the blood vessels. Both of these theories depend on the underlying hypothesis that these cells are stimulated to activity by some chemical or infectious stimulus. Opposed to this theory is the idea that lymphatic leukemia is a neoplastic process, which theory was first supported by

30. Fried, B. M.: Leukemia and the Central Nervous System, Arch. Path. **2**:23 (July) 1926.

31. Pinkus, F.: Ueber die Hautveränderungen bei lymphatischer Leukämie, Arch. f. Dermat. u. Syph. **50**:37-70, 177-202, 1899.

32. Ribbert: Lehrbuch der allgemeine Pathologie und pathologische Anatomie, ed. 8, Leipzig, 1921; Beiträge zur Entzündung, Virchows Arch. f. path. Physiol. **10**:391, 1897.

Babes [33] and later by Banti,[34] who grouped lymphatic leukemia in the group with sarcomas and included pseudoleukemia as merely one stage in the process. Some time before, Westphal [35] had described the transition of pseudoleukemia into leukemia, and Martin and Mathewson,[36] Palma [37] and Ewing [38] had described cases of lymphatic leukemia following lymphosarcoma. Then came the experimental evidence of the transmissibility of leukemia in fowls with a filtrable virus by Ellermann [39] Hirschfeld and Jacoby [40] Schmiesser [41] and others, which seemed to support the infectious hypothesis. On the other hand, Tyzzer and Ordway [42] and Haaland [43] failed to transmit the disease in mice by similar methods. Most of the later writing seems to favor the neoplastic theory. Catsaras,[44] Lenaz,[45] Piney,[46] Simonds,[47] and Mallory [48] con-

33. Babes: Neoplastische Leukämie, Centralbl. f. allg. Pathol. u. path. Anat. **13**:695, 1902.

34. Banti, G.: Le leukemie sperimentale, Arch. di biol. Firenze, **57**:786, 1903; die Leukaemieen, Centralbl. f. allg. Path. u. path. Anat. **15**:1, 1904.

35. Westphal, Otto: Ueber einen in akute Leukämie ubergehenden Fall von Pseudoleukämie, Griefswald, J. Abel, 1887.

36. Martin C. F., and Mathewson, G. H.: Observation upon the Relation between Leukemia and Pseudoleukemia, Brit. M. J. **2**:1328-1329, 1634-1636, 1701-1702, 1896.

37. Palma, P.: Ein Fall von Sarkomatosis nach primären Thymussarkom, verlaufend unter den Bilde einer lymphatischen Leukämie, Deutsche med. Wchnschr. **18**:787, 1892.

38. Ewing, J.: Clinical Pathology of the Blood, Philadelphia, Lea, Brothers & Company, 1901, p. 374.

39. Ellermann, V.: Untersuchungen über das virus der Huhnerleukämie, Ztschr. f. klin. Med. **79**:43, 1913; Histogenese der Uebertragbaren Hühnerleukose, Folia haemat. **26**:135 (Dec.) 1920; **26**:165 (April) 1921; Ueber Myelocyten und partiall granulierte myelocyten, Virchows Arch. f. path. Anat. **244**:493, 1923.

40. Hirschfeld, H., and Jacoby, M.: Ueber Hühnerleukämie und Blutveränderungen bei Hühnertuberculose, Berl. klin. Wchnschr. **49**:324, 1912.

41. Schmiesser, Harry C.: Spontaneous and Experimental Leukemia of the Fowl, J. Exper. Med. **22**:820, 1915; Leukemia of the Fowl: Spontaneous Experimental, Johns Hopkins Hosp. Rep. **17**:551, 1916.

42. Tyzzer, E. E., and Ordway, T.: Tumors of the Common Fowl, J. Research **21**:459 (Oct.) 1909.

43. Haaland, M.: Les tumeurs de la souris (lymphome malin de la souris), Ann. de l'Inst. Pasteur **19**:197 (March) 1905.

44. Catsaras, J.: Beitrag zur Frage über die infektiös-toxische Natur der leukämischen Erkrankungen, Virchows Arch. f. path. Anat. **249**:43, 1924.

45. Lenaz, L.: Die Pathogenese der Leukämie und die Begriffe der Hyperplasie, der Entzuendung und der Neubildung, Folia haemat. **29**:49 (June) 1923.

46. Piney, A.: Leucocytosis in Myeloid Leukemia, J. Path. & Bact. **26**:546 (Oct.) 1923; Neoplastic Nature of Leukemic Process, Am. J. M. Sc. **169**:691 (May) 1925.

47. Simonds, J. P.: Leukemia Pseudoleukemia and Related Conditions in the Slye Stock of Mice, J. Cancer Research **9**:329 (Sept.) 1925.

48. Mallory, F. B.: Principles of Pathologic Histology, Philadelphia, W. B. Saunders Company, 1914, p. 326.

sidered lymphatic leukemia as one variety of lymphoblastoma, the origin of which is a cell of the lymphoblastic series arising in some previous lymphatic tissue, usually a lymph gland, and spreading rapidly to the nearby lymph nodes. From here the cells migrate into the blood stream and from there to other organs, forming metastases either as tumor masses or as diffuse infiltrations. A lymphatic leukemia is produced when many of the cells remain in the blood stream and conditions are favorable for their growth in the latter. Before this increase of lymphatic cells in the blood stream, the picture is either pseudoleukemia or aleukemia. Evans and Leuceutia [49] gave unique support to the theory that lymphosarcoma and lymphatic leukemia are the same process by noting the effects of roentgenotherapy, which is the same on all, whereas it differs in Hodgkin's disease. They also maintained that after starting in some lymphatic tissue, the process must involve the bone marrow before the blood shows changes. They suggested from the observed fact that deep roentgen-ray treatment of the spleen causes changes in the blood and other lymphatic tissues; there may be a chemical or infectious, extrinsic element present while the intrinsic (specific) element remains in the cells themselves. This is the way that Young's [50] production of lymphatic leukemia in mice by injection of virus from carcinoma may be explained. This is the basis of Gye's [51] theory that there are two factors at work in the production of malignant disease: an extrinsic factor (virus) which he cultivated and which Barnard [52] demonstrated microscopically and an intrinsic (specific) factor produced in the cells themselves by continued irritation.

Thus, according to the present conception, lymphatic leukemia both with local or general skin manifestations or without them, pseudoleukemia, aleukemic lymphoderma and lymphosarcoma are probably all variants of the same disease, which is probably a neoplasm involving cells of the lymphoblastic series.

Mycosis fungoides is an entirely different disease clinically and shows the three stages of sharply outlined eczematous lesions with polycyclic borders and characterized by intense pruritus, the infiltrated

---

49. Evans, W. A., and Leuceutia, T.: The Neoplastic Nature of Lymphatic Leukemia and its Relation to Lymphosarcoma, Am. J. Roentgenol. **15**:497, 1926.

50. Young, J.: Further Investigation into the Etiology of Malignant Disease and Leukemia, Edinburgh M. J. **28**:233 (June) 1922; On an Organism Obtained from Carcinomatous Growths with a Description of its Pathogenic Effects in Mice, J. Path. & Bact. **25**:151, 1922.

51. Gye, W. E.: Aetiology of Malignant New Growths, Lancet **2**:109 (July 18) 1925.

52. Barnard, J. E.: Microscopical Examination of Filtrable Viruses, Lancet **2**:117 (July 8) 1925.

stage and the tumor and ulcerative stage. The blood shows frequently a fairly marked eosinophilia. Pathologically, there is also an abundance of eosinophils in many cases. Others show inflammatory changes and a characteristic part of the picture is a variation in the pathologic change in different tumors from the same case. At times, however, there is a lymphocytosis or even leukemia of the blood toward the end, and sections show lymphoblastoma. Whether this means that true leukemia has developed in a case of mycosis fungoides or that that particular case was lymphoblastoma at the start, is not yet clear.

The prognosis is that of the underlying leukemia, and the duration of the disease is not appreciably affected by any form of treatment. Arsenic has frequently been used in various forms but without causing appreciable improvement; some patients have been made distinctly worse by its use. Roentgenotherapy has not been successful in the general exfoliating type, though it has caused temporary improvement in the tumor forms. As Minot and Isaacs [53] have shown, the duration of life is not prolonged, even when roentgen-ray treatment is started early, and in the acute cases the effect is evanescent and slight. Minot and Buckman [54] have shown that great care should be exercised in its use; the blood picture, especially the type of cells and the number of platelets, should be watched carefully, or the treatment may do more harm than good.

SUMMARY

In leukemia numerous inflammatory conditions of the skin are observed which are probably due to elimination of toxins. These take the form of urticaria, vesicular lesions, prurigo and even general exfoliative dermatitis. Purpuric lesions are common, possibly due to the same causes and possibly also to injury of the vessel walls by leukemic growths.

There are also tumors, nodules, psoriatic forms and general exfoliative dermatitis due to true leukemia of the skin. Much discussion has arisen as to the origin of these new growths, whether they are primary in the skin or brought there by the blood stream, and whether those with the blood picture of lymphatic leukemia are distinct from those with normal blood. It seems most logical to consider all of them as lymphoblastomas arising in some lymph gland or other lymphatic tissue and emigrating to the blood stream either directly or by way of the lymphatics and the thoracic duct, and deposited in the form of metastases, either locally or as a diffuse infiltration.

---

53. Minot, G. R., and Isaacs, R.: Lymphatic Leukemia: Age Incidence, Duration and Benefit Derived from Irradiation, Boston M. & S. J. **191:** (July) 1924.

54. Minot, G. R., and Buckman, T. E.: The Blood Platelets in the Leukemias, Am. J. M. Sc. **169**:477 (April) 1925.

The treatment in all these conditions is unsatisfactory. Roentgen-ray treatments may prove temporarily beneficial for the tumors, but life is not prolonged by such treatment. It should be used with great caution and with continual checking up of the blood picture.

The disease is invariably fatal, the average duration, after the appearance of the skin lesions, being a little over two years.

TREATMENT OF MICROSPORON INFECTION OF THE SCALP

EUGENE PAUL LIEBERTHAL, M.D.
CHICAGO

The following simple treatment has proved effective in a series of cases of *Microsporon* infection of the scalp. The hair of the entire scalp was kept closely clipped throughout the duration of the treatment. On alternate days a 5 per cent aqueous solution of mercurochrome-220 soluble was painted on and around the ringworm patches and on any areas that showed the slightest scaliness. The parents were instructed to shampoo the patients' scalps daily with soap and water and to apply an ointment of 10 per cent ammoniated mercury twice daily. On the days on which the applications of mercurochrome were given, the scalps were shampooed in the morning before the patients presented themselves at the office or dispensary. The diagnosis and the later examinations were supported by microscopic, as well as by cultural, means. Not at any time during the treatment of these patients was the urine abnormal, nor was any irritation of the scalp observed. After the treatment was discontinued, the patients reported at intervals for examination. This treatment is now being used as a routine on a larger series of cases of *Microsporon* infection as well as of other forms of fungus infection of the scalp at Northwestern University and at the Michael Reese dispensaries. The results of these treatments will be reported at a later date.

REPORT OF CASES

CASE 1.—A boy, aged 9, a private patient, presented a condition of the scalp of three weeks' duration, when seen on Aug. 7, 1924. Treatment was instituted and the ointment applied regularly until Sept. 25, 1924. When he was last seen on June 26, 1926, the scalp was normal.

CASE 2.—A boy aged 5½ years, a private patient, was seen on Dec. 8, 1924. The scalp had been affected two months. Treatment was continued regularly until Jan. 25, 1925. When last seen on June 20, 1925, the scalp was normal.

CASE 3 and CASE 4.—Brothers, aged 2 and 3 years respectively, whose scalps had been diseased one month, were seen on Nov. 11, 1925, at Michael Reese Dispensary. These patients absented themselves frequently for many weeks at a time from the dispensary. Treatment was instituted and continued until May 15, 1926. When last seen on May 10, 1927, the scalps were normal.

CASE 5.—A boy, aged 12, who had been treated for the disease of the scalp for six months without favorable results was subjected to this treatment at the Northwestern University dispensary on May 6, 1927, and, in spite of irregular attendance, the treatment could be discontinued on July 8, 1927. At the last examination on Oct. 31, 1927, the scalp was normal.

Case 6.—A boy, aged 8, was presented at the Northwestern University dispensary on May 3, 1927, for a condition of the scalp which had lasted one month. Treatment was applied regularly until June 6, 1927. When the scalp was examined on Oct. 30, 1927, there was no evidence of the infection.

Although the number of cases reported is small, this report is published with the hope that others will try this method of treatment and will find it effective.

104 South Michigan Avenue.

ASYMPTOMATIC NEUROSYPHILIS

V. A COMPARISON OF EARLY AND LATE ASYMPTOMATIC NEUROSYPHILIS *

JOSEPH EARLE MOORE, M.D.
WITH THE ASSISTANCE OF MILDRED FAUPEL, A.B.
BALTIMORE

In 1922,[1] we reported the results of routine examination of the spinal fluid in 352 patients with primary and secondary syphilis who did not present definite clinical evidence of involvement of the central nervous system. It was pointed out that on the basis of the changes in the spinal fluid, early asymptomatic neurosyphilis might be divided into three subgroups. In the first of these (group 1), the fluid changes were minimal, consisting only of pleocytosis and slight increase in globulin, with negative Wassermann and colloidal tests. Another group of patients (group 3) showed spinal fluids with the first zone (general paralytic) formula even in the first few months of the infection, i.e., high cell count, from 50 to 200 or more, the test for globulin strongly positive, Wassermann fixation with small amounts of fluid, 0.1 cc. or less, and colloidal tests of the paralytic type. The intermediate group (group 2) contained all patients who failed to fit into either groups 1 or 3, usually those showing Wassermann fixation with large amounts of fluid, 0.5 cc. or more, and with positive colloidal curves of varying types.[2] Certain factors apparently influencing the incidence of abnormalities of the spinal fluid were discussed, such as race, sex, inadequate treatment, persistently positive Wassermann tests

* From the Medical Clinic of the Johns Hopkins Hospital.

1. Moore, J. E.: Studies in Asymptomatic Neurosyphilis: II. The Classification, Treatment and Prognosis of Early Asymptomatic Neurosyphilis, Bull. Johns Hopkins Hosp. **33**:231, 1922.

2. In this study of our material, 83 patients with early and 108 with late syphilis are classified as having group 2 fluids. Of these, 20 of the patients with early and 13 of those with late syphilis had fluids with a normal or slightly increased cell count, moderate amounts of globulin, a completely Wassermann reaction with 1 cc. of fluid and colloidal gold or mastic curves, or both, variably positive. A typical example (G61597) showed 5 cells, globulin + +, Wassermann test negative, gold curve 4443200000. It is difficult to know whether to regard this type of observation as laboratory error or as presumptive evidence of involvement of the neuraxis. In general, however, a fluid has been classified as abnormal whenever two of the five tests (excepting always the Wassermann reaction, which we have regarded when positive in any amount as a definite pathologic condition) were abnormal, and especially if a subsequent examination of the fluid showed the same or additional changes.

of the blood and the presence or absence of minor neurologic signs and symptoms. The ultimate clinical outcome in patients with abnormal fluids was also briefly studied.

The importance of this subject has led us to continue our observations. While it is true that routine examinaion of the spinal fluid in all syphilitic patients is now firmly established among syphilologists, it has not yet met with widespread acceptance, or at least with general usage, among members of the medical profession. This is perhaps because certain important questions in connection with the general problems of early neurosyphilis still lack definite answers based on accurate data. In this paper, therefore, we have again reviewed the question of early asymptomatic neurosyphilis, based on the study of 748 patients with primary and secondary syphilis; and, for purposes of comparison, we have included a similar analysis of 1,216 patients with various types of late syphilis, excluding all those in whom a clinical diagnosis of syphilis of the central nervous system could be

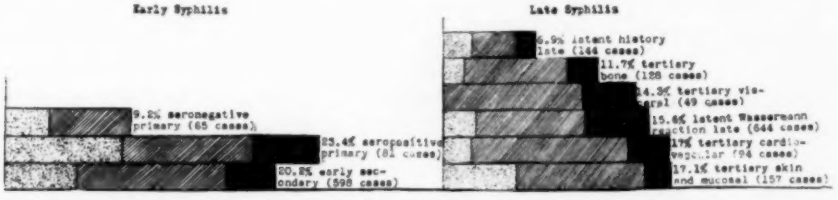
Early Syphilis
Late Syphilis
9.2% seronegative primary (65 cases)
23.4% seropositive primary (81 cases)
80.8% early secondary (598 cases)
6.9% latent history late (144 cases)
11.7% tertiary bone (128 cases)
4.3% tertiary visceral (49 cases)
15.6% latent Wassermann reaction late (644 cases)
17% tertiary cardiovascular (194 cases)
17.1% tertiary skin and mucosal (157 cases)

Chart 1.—Incidence of abnormal spinal fluid in 744 patients with early syphilis and 1,216 patients with various forms of late syphilis exclusive of clinically recognizable neurosyphilis. In this and the subsequent charts the stippled areas represent group 1; the shaded areas, group 2, and the solid areas, group 3 fluids.

made. We shall consider the relative incidence of abnormalities of the spinal fluid in various types and stages of syphilitic infection; the influence of race, sex and treatment on their incidence and such clinical aids to the recognition of their probable existence as a persistently positive Wassermann reaction of the blood and various minor neurologic symptoms and signs. In order to avoid the tedium of tabular statistical presentation, our data are shown in graphic form.

In chart 1 appears the gross incidence of abnormalities of the spinal fluid in various stages of syphilitic infection, beginning with seronegative primary (average duration of disease less than fourteen days), through seropositive primary (average duration three weeks) and early secondary syphilis (average duration three months) to the larger group of patients with late manifestations of the disease, the average duration here being measured in years. In these and similar subsequent charts the stippled blocks represent group 1, the shaded areas group 2, and the solid black areas group 3 fluids. In con-

sidering the gross incidence of abnormal fluids in these first two charts, such extraneous factors as the amount of treatment given before puncture are eliminated. In general, it may be said that while a few patients were studied before treatment, the majority had been under treatment for an average of six months (two courses of arsphenamine plus an interim during which mercury or bismuth was administered) before the puncture was performed. Under these circumstances, the fact that only 9.2 per cent of the patients with seronegative primary syphilis had abnormal fluids without any group 3 fluids included, as contrasted with 23.4 per cent of cases of seropositive primary syphilis, is striking proof of protection of the nervous system by adequate early treatment. It is confirmatory of the data presented in our recent study of the end-results of treatment,[3] in which we showed that under varying circumstances of treatment, the percentage chance of apparent cure dropped from 52.3 in seronegative primary to 29.5 in seropositive primary syphilis.

An interesting observation from chart 1 is that the incidence of abnormal spinal fluids is slightly higher in cases of seropositive primary (23.4 per cent) than in early secondary syphilis (20.2 per cent). This too is in accord with the data from our survey of treatment in which the percentage chance of apparent cure is slightly better in early secondary (32.1 per cent) than in seropositive primary syphilis (29.5 per cent). These paradoxic results seem to vitiate somewhat the necessity for haste in early diagnosis and treatment, in that they apparently indicate that a patient who has been allowed to develop the tissue reaction of secondary syphilis stands a slightly better chance of ultimate cure and a lesser chance of involvement of the central nervous system than if such treatment prevents the tissue reaction and development of immunity. While this may be true for the individual patient, the public health aspect of syphilitic infection prevents the adoption of the measure.

In late syphilis there is a decided drop in the incidence of asymptomatic neurosyphilis (13.5 per cent for all types of late syphilis). This is due to the fact that by this time a number of patients, whose fluids would have been found to be abnormal if studied early, have developed frank clinical neurosyphilis. In an earlier publication, we pointed out[4] that 14.1 per cent of 5,410 syphilitic patients were clinically recognizable as neurosyphilitic. This figure added to the 13.5 per cent of asymptomatic neurosyphilis in the late stages of the infec-

3. Moore, J. E., and Kemp, J. E.: The Treatment of Early Syphilis: II. Clinical Results in 402 Patients, Bull. Johns Hopkins Hosp. **39**:16, 1926.

4. Moore, J. E.: Studies in Asymptomatic Neurosyphilis, III: The Apparent Influence of Pregnancy on the Incidence of Neurosyphilis in Women, Arch. Int. Med. **30**:548 (Nov.) 1922.

tion approximates the incidence of abnormalities of the spinal fluid observed in early secondary syphilis (from 20 to 23 per cent) and explains the discrepancy between early and late asymptomatic neurosyphilis.

In chart 1 late syphilis is further analyzed according to the type of lesion present. Contrary to the usual statement that those patients who develop late cutaneous syphilis are unlikely to suffer from involvement of the neuraxis, it is precisely in this type of patient that late asymptomatic neurosyphilis is most frequent. In cardiovascular syphilis, changes in the spinal fluid are present with almost equal frequency. Of patients with outspoken tertiary lesions, those with syphilis of the bone seem less likely to develop serologic evidence of involvement of the nervous system than others. We have specially included a perhaps artificial division of latent syphilis into a group in

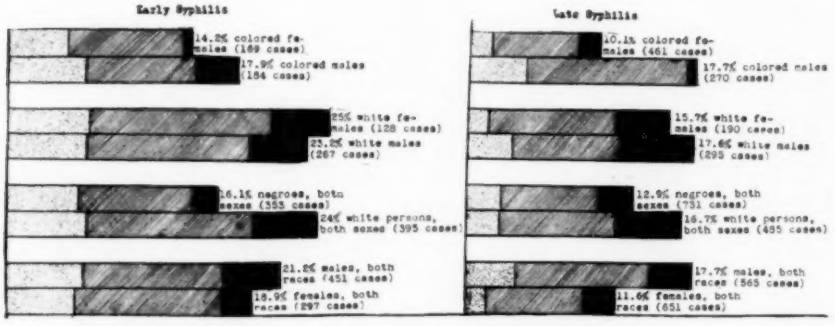
Early Syphilis
14.2% colored females (169 cases)
17.9% colored males (184 cases)
25% white females (128 cases)
23.2% white males (267 cases)
16.1% negroes, both sexes (353 cases)
24% white persons, both sexes (395 cases)
21.2% males, both races (451 cases)
18.9% females, both races (297 cases)
Late Syphilis
10.1% colored females (461 cases)
17.7% colored males (270 cases)
15.7% white females (190 cases)
17.6% white males (295 cases)
12.9% negroes, both sexes (731 cases)
16.7% white persons, both sexes (485 cases)
17.7% males, both races (565 cases)
11.6% females, both races (651 cases)

Chart 2.—Incidence of abnormal spinal fluids in patients with early syphilis and in patients with late syphilis, analyzed by race and sex.

which the presence of infection was confirmed by a positive Wassermann reaction of the blood and a group in which the diagnosis rested on a detailed history, usually including a history of considerable treatment, with a negative Wassermann test of the blood. In the latter circumstances, abnormalities of the spinal fluid are strikingly infrequent. This is probably only an index of previous adequate treatment, since the patients in this group are usually intelligent and come in voluntarily to obtain information as to the status of a treated infection.

The distribution of race and sex in early and late asymptomatic neurosyphilis is shown in chart 2. It is apparent that there is only a slight difference in favor of the female sex in early syphilis, wholly accounted for by the extremely low incidence of the condition in females of the negro race. In the white race the percentage of abnormal fluids is slightly higher among females than among males. There is, however, evidence of distinct protection of the negro's nervous

system even in early syphilis, and the small number of group 3 fluids is particularly striking. This is in accord with the known low incidence of tabes and general paralysis in the negro as compared with the white race. In late syphilis, the incidence of abnormal fluids (and again especially group 3 fluids) is significantly lower in females than in males, and in the negro than in the white race.

In the material at our disposal, now amounting to over 12,000 syphilitic patients, clinical neurosyphilis also is much more frequent in males than in females and in white people than in negroes. The differences in sex are particularly striking. Parenchymatous neurosyphilis (tabes and general paralysis) is, in our clinic, four times as common in men as in women; diffuse meningovascular neurosyphilis about twice as frequent.[4] More detailed figures as to these points will shortly be forthcoming. Evidently there is some special factor operative in women and not in men which hinders the development of clinical neurosyphilis, even though invasion of the neuraxis, as shown by changes in the spinal fluid, takes place equally frequently in the two sexes.

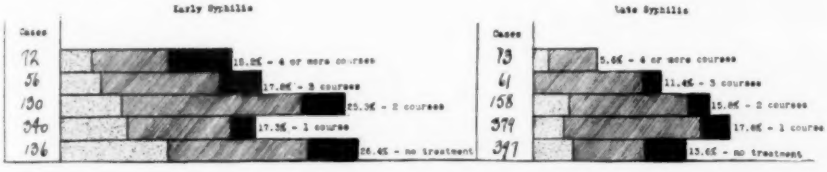

Chart 3.—Incidence of abnormal spinal fluids in patients with early syphilis and in patients with late syphilis, after varying amounts of treatment.

The effect of the amount of treatment administered prior to routine spinal puncture on the incidence of abnormalities of the spinal fluid is presented in chart 3. Here one observes several interesting phenomena. Group 1 fluids tend to disappear rapidly after treatment, this being more apparent in early than in late syphilis. In early and late syphilis both, group 2 fluids tend to increase after one or two courses of treatment, this accounting for the aggregate increase. Only after three or more courses of treatment is there a marked fall in group 2 fluids in either class of patients. This preliminary rise is difficult to explain; it may, at least in early syphilis, be due partly to the effect of lapsing or intermittent as compared to continuous treatment. Unfortunately, the material is still too small to allow analysis of this factor in detail. Another probable factor is that the type of abnormal fluid may depend on the exact time of puncture. In other words, a patient whose fluid studied today is found to be group 1 in type, might show a group 2 or 3 fluid if puncture had been delayed a month or two.

It is important once more to point out that the incidence of group 3 fluids is practically not influenced by as much as four courses (roughly one year) of treatment. In early syphilis, their incidence is actually higher after four courses of treatment than after no treatment. The same thing is true, though to a less degree, of late syphilis. This affords additional evidence of the gravity of this type of change in the spinal fluid even in the early months of the disease. Data will be produced in the next paper of this series to strengthen the assumption that from this group come the future tabetic and paralytic patients, particularly the latter.

Aside from these group 3 patients, however, the charts demonstrate that one can, with prolonged adequate routine treatment, reduce the incidence of abnormal spinal fluids to a minimum. It cannot be too frequently emphasized that treatment for early syphilis is of long duration and that clinical neurosyphilis is much more easily prevented than treated.

In a previous paper of this series,[1] great emphasis was laid on the effect of irregular, intermittent, and lapsing treatment in increas-

Chart 4.—Incidence of abnormal spinal fluids in patients with early syphilis and in patients with late syphilis, whose treatment was continuous as contrasted with those in which it was intermittent.

ing the incidence of abnormalities of the spinal fluid in early syphilis. This is fully borne out by the much larger series of this paper in chart 4. Asymptomatic neurosyphilis is almost three times as frequent when treatment is irregular as when it is carried out without rest periods of any kind, and group 3 fluids are increased tenfold by allowing treatment to lapse. In late syphilis, on the contrary, no such effect is apparent. Here one finds only a slight increase in the incidence of abnormalities of the spinal fluid after intermittent treatment, and even this is probably accounted for by the inclusion of a number of relatively early cases in the group of latent syphilis. The difference in this respect between early and late syphilis is, I believe, wholly accounted for by the fact that in early syphilis immunity is in the process of establishment and may be suddenly altered or temporarily abolished by antisyphilitic drugs. Undestroyed foci of organisms in the nervous system, to which penetration of the arsphenamines is notoriously difficult, may then multiply without any hindrance from the patient's own defense mechanism. In

late syphilis, on the other hand, immunity is so firmly established (and probably extended to include the tissues of the nervous system) that the spinal fluid undergoes slight if any alteration from the shock of treatment. From this standpoint, then, one may conclude that in late syphilis continuous treatment is by no means so essential as in early syphilis, and a rest period probably does no harm.

The optimum time for performing routine spinal puncture is a matter of considerable importance to the practicing physician. Providing that treatment is carried out with absolute regularity, it is our present practice to test the fluid after the second course of arsphena-

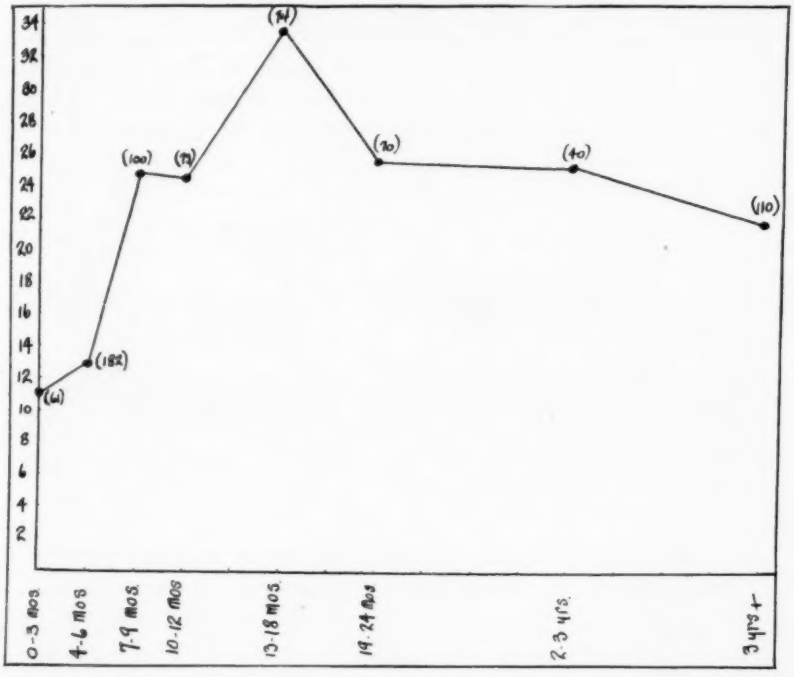

Chart 5.—Incidence of abnormal spinal fluids in syphilis from the standpoint of the duration of the infection before spinal puncture.

mine (at about the sixth month of treatment). Chart 5 shows, however, that disregarding the character of the treatment, the highest incidence of abnormalities of the spinal fluid in early syphilis is at about the eighteenth month after infection. If one is dealing with a patient who cooperates, puncture may safely be performed at about the sixth month, and if the fluid is negative, need not be repeated until the end of the patient's year of probation. If the patient does not cooperate and allows frequent lapses to interfere with the regularity of his treatment, puncture should be performed early, in order to detect the possible beginnings of invasion of the neuraxis; but it should be

repeated between the eighteenth and twenty-fourth month of the infection, particularly if there has been a clinical recurrence or a recurrence of a positive Wassermann reaction of the blood. It is rarely worth while and may be dangerous to perform puncture on a patient with early syphilis before treatment is given.

The ease with which the Wassermann test of the blood is reduced to negative by treatment is a much better guide of the incidence of changes in the spinal fluid in early than late syphilis, as may be seen from chart 6. In a patient with primary or secondary syphilis, a persistently positive Wassermann test of the blood after one or two courses of treatment is strong presumptive evidence of the presence of an abnormal spinal fluid. In late syphilis, the difference in the percentage of abnormal fluids when the blood test becomes negative or remains positive after a given amount of treatment is barely apparent until at least three or more courses of treatment have been

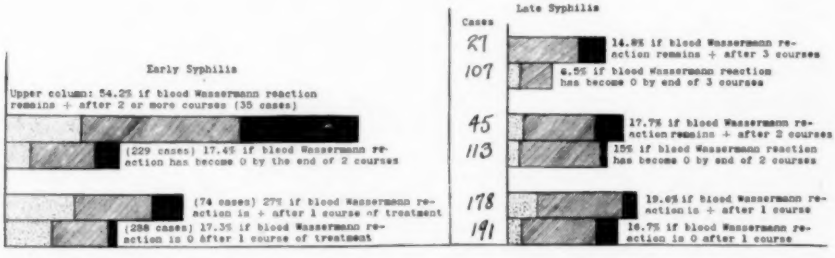
Late Syphilis
Cases
87
14.9% if blood Wassermann reaction remains + after 3 courses
107
6.5% if blood Wassermann reaction has become 0 by end of 3 courses
45
17.7% if blood Wassermann reaction remains + after 2 courses
113
15% if blood Wassermann reaction has become 0 by end of 2 courses
178
19.6% if blood Wassermann reaction is + after 1 course
191
16.7% if blood Wassermann reaction is 0 after 1 course
Early Syphilis
Upper column: 54.2% if blood Wassermann reaction remains + after 2 or more courses (35 cases)
(229 cases) 17.4% if blood Wassermann reaction has become 0 by the end of 2 courses
(74 cases) 27% if blood Wassermann reaction is + after 1 course of treatment
(286 cases) 17.3% if blood Wassermann reaction is 0 after 1 course of treatment

Chart 6.—The relationship of persistent positive Wassermann reactions of the blood to the incidence of abnormal spinal fluids in early and in late syphilis.

given. At this stage of the infection, a persistently positive blood test is much more likely to be due to bone, visceral or cardiovascular involvement than early in the disease.

Certain minor symptoms and physical signs point to the possibility of the existence of asymptomatic neurosyphilis. These are: headache, insomnia, vague neuralgic or rheumatic pains, giddiness and nervousness; miosis, mydriasis, inequalities, irregularities of outline or some incompleteness or sluggishness of the direct or consensual light reaction of the pupils; exaggeration, sluggishness or inequalities of the deep reflexes. All these subjective and objective signs may and frequently do occur in normal as well as in syphilitic persons in whom no other neurologic damage can be demonstrated. Their presence is therefore no more than presumptive evidence of the existence of neurosyphilis. But any or all of them, occurring in a syphilitic patient, should arouse the suspicion of the examiner as to this possibility.

The data presented in chart 7 strongly indicate the importance of these phenomena as evidence of invasion of the nervous system; but

further point out that as evidences of activity of the infection in the neuraxis, they are of much value in early syphilis but of little or none late in the infection. In early syphilis, 13 per cent of the patients with negative fluids describe suggestive subjective complaints, and 16 per cent show one or more of the minor neurologic abnormalities detailed. The incidence of both subjective and objective signs rapidly increases proportionate to the gravity of the fluid changes, so that of patients with group 3 fluids, 52 per cent have subjective symptoms and 32 per cent abnormal signs. On the contrary, in late syphilis both subjective and objective abnormalities of this minor nature are present with almost the same frequency whether the spinal fluid is negative or positive, and there is no parallelism between their presence and the gravity of the changes in the spinal fluid. This is confirmatory evidence of the frequently expressed theory that in practically every patient with syphilis, invasion of the nervous system occurs early in the infection, but that the majority of patients succeed in dealing with the invasion of the neuraxis so that it

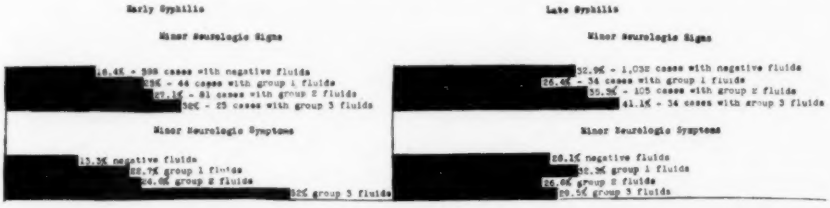
Early Syphilis
Minor Neurologic Signs
16.4% - 398 cases with negative fluids
23% - 44 cases with group 1 fluids
27.1% - 81 cases with group 2 fluids
32% - 25 cases with group 3 fluids
Minor Neurologic Symptoms
13.3% negative fluids
22.7% group 1 fluids
24.6% group 2 fluids
52% group 3 fluids
Late Syphilis
Minor Neurologic Signs
32.9% - 1,038 cases with negative fluids
26.4% - 34 cases with group 1 fluids
35.2% - 105 cases with group 2 fluids
41.1% - 34 cases with group 3 fluids
Minor Neurologic Symptoms
28.1% negative fluids
26.2% group 1 fluids
26.6% group 2 fluids
29.5% group 3 fluids

Chart 7.—Incidence of minor neurologic symptoms and signs in patients with normal and abnormal fluids in cases of early and in cases of late syphilis.

never rises to the level of frank clinical neurosyphilis, and leaves as its scars these minor evidences of damage to the nervous tissue.

In a subsequent paper of this series, the prognosis and treatment of early and late asymptomatic neurosyphilis will be discussed.

SUMMARY AND CONCLUSIONS

1. Both early and late in the course of syphilitic infection, asymptomatic neurosyphilis is of common occurrence.

2. On the basis of the character of the changes in the spinal fluid, such cases may be divided into three groups: Group 1 includes patients with minimal serologic abnormalities; group 3, those with maximal changes (the paralytic formula); group 2, those with fluids of an intermediate type. This classification serves as a working basis for studying factors influencing the occurrence of asymptomatic neurosyphilis and its prognosis and treatment.

3. Under the circumstances of this study, the incidence of abnormal spinal fluids in seronegative primary syphilis is 9.2 per cent; in seropositive primary, 23.4 per cent, and in early secondary syphilis, 20.2 per cent.

4. In late syphilis of all types, excluding clinical neurosyphilis, the incidence of asymptomatic neurosyphilis is 13.5 per cent. There is no striking evidence that any type of tertiary syphilis protects the nervous system against involvement.

5. In early syphilis, changes in the spinal fluid are equally frequent in men and in women, but are considerably less common in negroes than in white people. In late syphilis, the same racial protection is apparent; also women of both races are less frequently affected than men.

6. With the exception of group 3 fluids, adequate treatment markedly reduces the incidence of abnormalities of the spinal fluid in both early and late syphilis.

7. In patients with early syphilis treated intermittently, asymptomatic neurosyphilis is three times as frequent as when treatment is carried out continuously without rest periods. In late syphilis, such differences are not apparent. The significance of this is discussed.

8. The optimum time for routine spinal puncture in a patient with early syphilis who is cooperative is after six months of treatment. If the patient allows frequent lapses to enter into treatment, the optimum time is from the eighteenth to twenty-fourth month of the infection.

9. A persistently positive Wassermann reaction of the blood in early syphilis when treatment has been given is strong presumptive evidence of the existence of asymptomatic neurosyphilis, but this does not hold true in late syphilis.

10. Various minor subjective and objective neurologic signs in early syphilis are strongly suggestive of the presence of asymptomatic neurosyphilis, but this is not true of late syphilis.

11. Routine examination of the spinal fluid is an indispensable feature of the management in early or late syphilis.

12. The prognosis and treatment of asymptomatic neurosyphilis will be discussed in a subsequent paper.

IRRADIATION OF THE THYMUS GLAND IN THE TREATMENT OF PSORIASIS *

ROBERT C. JAMIESON, M.D.
DETROIT

Since Foerster,[1] in 1921, made his report on cases of psoriasis in which the patients were treated by irradiation of the thymus gland, and called attention to the method advocated by Brock,[2] there has been a paucity of observations on this form of treatment, at least in the United States.

Foerster's [1] work suggested a line of treatment easily applied, apparently harmless and with a possibility of improvement in the lesions, even though it might be temporary. During the past six years, irradiation of the thymus was tried in fifty cases. Some patients were selected on account of the severity of the disease, others because of the mildness of the attack; they were observed for periods of time varying from six years to several months. Friedlander [3] believed that the thymus functions as a lymphoid organ and is related to the question of immunity and resistance. Abt [4] believes that it is doubtful whether the thymus has an internal secretion, but that it should not be regarded as superfluous.

Foerster concluded from his work that it was reasonable to assume a possibility of thymus therapy, and that the results justified the consideration of this treatment as a practical procedure in the treatment of psoriasis, as 50 per cent of his cases showed a marked improvement or disappearance of the eruption. He stated, however, that the favorable results were only temporary.

In 1922, Schneider [5] wrote, in his conclusions, that "with such an uncertain influencing of the thymus through X-rays we must agree in our opinion with Martenstein, who also with Hauck arrived at the same unfavorable results, that it is not possible to assume a pathological relation between the thymus and psoriasis."

---

* Read at the Fiftieth Annual Meeting of the American Dermatological Association, Baltimore, May 12-14, 1927.

1. Foerster, H. R., and Foerster, O. H.: New Method of Roentgen-Ray Therapy in Psoriasis, Arch. Dermat. & Syph. **4**:639 (Nov.) 1921.

2. Brock: Strahlentherapie **11**:5630, 1920.

3. Friedlander, quoted by Abt: Pediatrics, Philadelphia, W. B. Saunders Company, 1924, vol. 4, p. 660.

4. Abt, I. A.: Present Status of Our Knowledge Concerning Thymus Gland, M. J. & Record **124**:525 (Nov. 3) 1926.

5. Schneider, P.: Roentgen Irradiation of Thymus in Psoriasis, Wien. klin. Wchnschr. **35**:565 (June 23) 1922.

In 1923, Herxheimer [6] mentioned Brock's method, stating that a change was not observed in the psoriatic lesions in twenty cases, while others showed rapid changes.

Görl and Voigt [7] (1921) mentioned a case of generalized psoriasis in which a full erythema treatment of one hand only with the roentgen ray resulted in a complete disappearance of the lesions in a short time. They thought that in this case they were dealing with a general and not a local reaction of the body, in view of which the results of irradiation of the thymus in psoriasis were not remarkable. They also believed that in general it is immaterial which part of the body is selected for roentgen-ray treatment.

Gross [8] reported two cases in which psoriasis vulgaris had persisted in the patients for years to whom he administered thymus extract (1 cc. corresponding to 2 Gm. of thymus gland). Between ten and fifteen injections were given, and the patients were reported cured.

In a study of 102 cases, Levy-Franckel and Juster [9] found, in addition to congenital syphilis in 27.5 per cent of the cases, that pregnancy and menstruation had some influence on the disease and that thyroid therapy appeared to be of value in some cases, as also did roentgenotherapy at times when administered over the thyroid, suprarenal and thymic regions. They did not attempt, however, to explain the action of roentgenotherapy in these cases.

The results of Gawalowski's [10] work appeared to corroborate the hypotheses of Samberger and Brock regarding the alteration of the function of the thymus gland by the roentgen ray. His study of the changes in the blood following the irradiation of the thymus gland showed that the end-products of destroyed blood cells do not directly influence the parakeratotic diathesis, although they may have an indirect effect on the psoriasis through resulting inflammatory changes which increase the defensive forces of the organism. He also showed that an increase in the function of the thymus causes a slight increase in formation of pigment.

Crha [11] reported a lymphocytosis in 85 per cent of 100 cases of psoriasis, the percentage of the lymphocytosis ranging from 25 to 40

---

6. Herxheimer, K.: Present Status of Treatment of Psoriasis, Wein. klin. Wchnschr. **2**:1369 (July 16) 1923.

7. Görl and Voigt: München. med. Wchnschr. **68**:1423 (April) 1921.

8. Gross, B. G.: Treatment of Psoriasis with Thymus Extract, Deutsche med. Wchnschr. **48**:1211 (Sept. 8) 1922.

9. Levy-Franckel, A., and Juster, E.: Results of Treatment of Psoriasis with Endocrine Preparations and Irradiation of Glands of Internal Secretion, Bull. Soc. franç. de dermat. et syph. **30**:382, 1923.

10. Gawalowski: A Clinical and Experimental Study of Psoriasis, Ceska Dermat. **5**:1, 1923.

11. Crha: Ceska Dermat. **5**:266, 1924.

per cent in 58 cases and from 55 to 65 per cent in three cases. He reported a cure in one patient with psoriasis after fourteen injections of thymus extract; this, he said, would tend to substantiate Samberger's theory of increase of vitality of the epidermal cells by stimulation of the thymus.

Gawalowski,[12] using Brock's method of irradiation of the thymus, reported 65.8 per cent of cases in which the treatment was successful. He used, however, a larger dose administered at shorter intervals than Brock recommended. He concluded that the defensive forces of the skin were not increased by this method, on account of minute pustule formation in some early papules shortly after irradiation, and that recurrences were frequent; yet this method was to be considered a valuable (though uncertain) antipsoriatic measure.

Steiner [13] irradiated the thymus gland in eleven cases and also gave thymus extract internally. He reported that there was a recurrence in one of three of the patients whose lesions disappeared; two patients were improved, the condition in five remained unchanged and was aggravated in one.

Rummo [14] confirmed Brock's results, and stated that of twelve patients treated, five were completely cured, three were almost entirely cured, two were improved and the condition of two was unchanged by the treatment. Each patient received two treatments, each consisting of one Holzknecht unit at skin distance, 4 mm. of aluminum being used as a filter; the treatments were given four weeks apart.

Schreiner [15] considered the irradiation of the thymus gland a valuable adjunct in the treatment of psoriasis, having treated thirty-two patients by Brock's method and noted complete disappearance of lesions or improvement up to 50 per cent. None of the patients was uninfluenced by treatment.

Semon [16] reported a cure in a case of psoriasis in a girl aged 7. He stated that previous failures had been due to overdosage. In discussing this case (quoted in the same report), Oppenheim said that in a series of thirty cases nearly all of the patients had had a relapse after a short time, while Hannay (in the same discussion) said that he did not believe any improvement had occurred in his cases following the internal administration of thymus gland.

---

12. Gawalowski: Ceska Dermat. **4**:94, 1924.
13. Steiner, E.: Thymus Treatment of Psoriasis, Dermat. Wchnschr. **78**:499 (May 3) 1924.
14. Rummo, R.: Roentgenotherapy of Psoriasis by Brock's Method, Gior. ital. di mal. ven. **65**:578 (April) 1924.
15. Schreiner: Dermat. Wchnschr. **80**:281 (Feb. 21) 1925.
16. Semon: Proc. Roy. M. & Chir. Soc. **17**:92, 1923-1924.

In 1925, Mestschanski [17] reported the results of treating forty-one patients with psoriasis by irradiating the thymus and thyroids:

> An influencing of psoriasis is evident by X-raying the thymus and thyroids. In more than half the cases, psoriasis was cured, often after the first eight to fourteen days. In the other cases a considerable improvement was reached. A very small number of the cases remained decidedly unbenefitted by the thymus and thyroid X-raying.

Kumer [18] reported the cases of several patients treated by Brock's method who were uninfluenced by the treatment.

Spillman and Carillon [19] reported a case of psoriasis in a patient who experienced a disturbance of the vagosympathetic equilibrium and who was improved by the administration of thymus gland. Nine other patients with psoriasis who had definite endocrine disorders were improved by appropriate glandular therapy.

After failure to cure two psoriatic patients with insulin, Louste, Levy-Franckel and Juster [20] irradiated the thymus, thyroid body and spleen of one of the patients, with resulting improvement.

Samberger [21] found that many psoriatic patients were improved by subcutaneous administration of thymus substance, but disagreed with the theory that the thymus was always at fault in cases of psoriasis. He stated, however, that the hormone seemed to increase the vitality of the skin and would therefore be good symptomatic treatment.

Camrda [22] treated a 10 year old boy who had a resistant case of psoriasis by administering thymus extract and by using thyroid and testes later. The lesions cleared up in two months, and he believed that the vitality of the skin cell was increased by the thymus extract and also by the other glandular extracts.

The factors adopted in the treatment of my patients were kept constant as nearly as possible, and the same apparatus was used throughout: 88 kilovolts (corresponding to a 6 inch spark gap); 5 milliamperes; skin target distance, 12 inches with a 3 mm. aluminum filter; time varying to meet the amount of dosage required. The area irradiated extended from the laryngoclavicular line to the fifth intercostal space, with the parasternal lines as lateral boundaries.

Two of these factors differed from Foerster's, the spark gap being smaller (6 inches) and the skin target distance being greater (12

17. Mestschanski, J.: Roentgen Irradiation of Thymus and Thyroid in Psoriasis, Deutsche med. Wchnschr. **51**:1874 (Nov. 6) 1925.

18. Kumer, L.: Treatment of Psoriasis, Wein. klin. Wchnschr. **37**:1870, 1924.

19. Spillman, L., and Carillon, L.: Bull. Soc. franç. de dermat. et syph. **32**:63, 1925.

20. Louste; Levy-Franckel, A., and Juster, E.: Bull. Soc. franç. de dermat. et syph. **33**:152, 1926.

21. Samberger: Acta derm. venereol. **2**:359 (Nov.) 1921.

22. Camrda: Ceska Dermat. **3**:38, 1921.

inches), and it is possible that his use of a more penetrating dosage of roentgen ray may have made a difference in the results obtained.

Although, according to most observers, the thymus extract is inert when administered orally, nevertheless, as a possible aid to stimulation of the thymus function or action, many of the patients were given the extract of thymus gland in addition to receiving the roentgen-ray dose over the thymus area. Some patients had previously received this medication alone, but without apparent effect. However, one patient, a man, complained of enlargement and sensitiveness of the mammary gland after taking the extract. This condition disappeared on withdrawal of the drug but reappeared when the drug was again ingested. This would appear to indicate that the thymus extract, administered orally, may be capable of producing some effect in certain persons.

Of the fifty patients treated by this method, thirty-two were males and eighteen females, the ages varying from 6 to 62 years, with an average of 32. The lesions had been present for from two months to forty years and were of all types and all grades of severity. The results of treatment were divided into permanent improvement (appreciable improvement for a considerable period of time as evidenced by milder recurrences or complete disappearance of the lesions); temporary improvement (either marked or slight) and no improvement. None of the patients showed a rapid change in the condition, but there were two who could be called cured, as was shown by complete disappearance of the lesions, which have not recurred. I observed the same results as recorded by Foerster; namely, the lesions on the elbows and knees were far more resistant to treatment than those located elsewhere, but in no case was the response to treatment rapid or striking. Those cases in which the lesions were small, scattered and few were also resistant to treatment. In a few cases the patient received roentgen-ray treatments without the thymus extract, but these patients did not show any change in their condition. It would, perhaps, have made no difference if the extract had been administered, and the patients may show improvement later, as my technic appears to act slowly.

The patients who were considered definitely improved (five or 10 per cent) were of different physical types, but all had the same general type of lesion: widespread, profuse and of long standing. All said that the result obtained was best shown by a general improvement which had become evident during the succeeding seasonal changes some time after the treatment. A careful consideration of the history and treatment in the cases in the improved group leads one to believe that the change in the lesions was due solely to the method of treatment.

Among the patients considered temporarily improved, there was no uniformity of physical type which showed more improvement than others. Seventeen, or 34 per cent, showed temporary improvement;

Tabulation of Cases with Result of Treatment

Number	Sex	Age	Duration of Disease	Time of Treatment in Minutes	Result
1	F	19	6 years	3.5	Improvement
2	M	48	25 years	3.33	None
3	M	36	15 years	4	None
4	F	32	15 years	4 3.5 4	None
5	M	14	4 years	3 3 3	Temporary improvement
6	M	16	2 months	2.5	None
7	M	29	10 years	3.5	Late improvement
8	M	21	10 years	4 5	None
9	M	38	7 years	4	None
10	M	39	7 years	3 3.5	Slight improvement
11	F	16	5 years	2 3 4 3 3.25	Recurrences less severe
12	M	14	10 years	2.33 2.5	Improved
13	F	42	2 years	4	None
14	F	42	25 years	3	None
15	M	38	10 years	4	Slight temporary improvement
16	M	37	3 years	3.5 4	Improved
17	M	39	5 months	3.5 4 4	None
18	M	40	3 years	3	None
19	F	13	3 years	3 3.5	None
20	F	29	10 years	3.5 4	None
21	M	26	1 year	3.5	None
22	M	56	20 years	4	None
23	M	31	6 years	3.5	None
24	F	57	25 years	3.5 3.5	None
25	F	26	5 years	3.3 3.4	Improved
26	M	19	7 years	3 3	Improved
27	M	30	17 years	4 4 4	None
28	M	6	6 months	2	Improved
29	M	33	8 years	4	None
30	M	26	5 years	3.5	Much improved
31	M	40	20 years	3.5 4 4	Cured
32	M	48	10 years	3.5 4	Improved
33	M	32	25 years	4 4	Improved
34	M	44	16 years	4 (5 treatments)	None

Tabulation of Cases with Result of Treatment—Continued

Number	Sex	Age	Duration of Disease	Time of Treatment in Minutes	Result
35	M	30	5 years	3.5 3.5 4	Much improved
36	M	24	5 years	3 4	Slight improvement
37	F	21	10 years	3 3	None
38	F	38	7 years	3 4	None
39	M	36	12 years	4 (5 treatments)	Improvement
40	M	45	5 years	2.75	None
41	F	24	10 years	4 4.5	None
42	M	40	20 years	4	None
43	F	16	5 years	3.5	None
44	M	50	20 years	4	None
45	F	15	10 years	3.5 3.5	Slight improvement
46	F	16	7 years	3.5	Slight improvement
47	F	31	8 years	3.5	None
48	F	62	40 years	3	Somewhat improved
49	M	35	16 years	4	None
50	M	50	20 years	4 4.5	Improved

in many of these it was transitory and in others of considerable duration. Of these seventeen patients, five were females and twelve males, the ages varying from 6 to 62 years. Twenty-eight patients (56 per cent) were considered unimproved; one of them reported an exacerbation which persisted for some time.

In reviewing the reports of the investigators noted earlier in the paper, it is apparent that the preponderance of opinion is greatly in favor of the value of this method of treatment for psoriasis. Two of the observers did not report any results from treatment; the remainder said that improvement had followed in a large percentage of patients treated, even a cure occurring in some. All, however, agree that relapses are to be expected in almost all cases.

While the results of treatment in the cases comprising this report do not tend to rouse overwhelming enthusiasm or lead me to feel that it is a "cure" for psoriasis, I believe that the method of thymus irradiation, with or without the use of thymus extract internally or by injection, has a place in the treatment of patients with psoriasis which should be recognized.

On account of the difficulty of obtaining any definite method of dosage, this method must be used more extensively over longer periods of time and in all types of cases before any standard dose can be established, or before a dosage can be determined that may produce

more permanent effects. My failure to obtain as high a percentage of good results as was reported by Foerster and others may be due to the difference in the spark gap used (2½ inches), and it may possibly be of some interest to treat some of my patients again, using the larger spark gap, and to compare the results.

In conclusion, I believe this method of treatment is apparently of benefit in some cases of psoriasis. It has not shown any harmful results. In the cases I have observed, it seems to be of the most benefit in lessening the severity of the recurrences in many inveterate cases.

ABSTRACT OF DISCUSSION

Dr. Otto H. Foerster, Milwaukee: This paper is the first exposition that I have heard in this country of the results obtained from the method of Brock, since our paper was read in 1921. Dr. Harry R. Foerster has reviewed all our cases recently and will present a summary, in addition to an account of what has become of the patients whose cases were reported in our first paper. Of course, the entire subject is built up on the hypothesis that there is a functioning remnant of thymus gland through which the therapeutic action may be exhibited. I will not go into that now, but will state that my belief is that the treatment is of value. We are convinced of its value in a small percentage of cases, and believe, as Dr. Jamieson has indicated in his summary, that it is a method which is applicable in the treatment of patients with psoriasis from the various angles he has pointed out.

Dr. Harry R. Foerster, Milwaukee: I believe it will be of interest if I present some information regarding the cases that were reported by us before this Association in 1921 and cases of patients whom we have treated since then. At that time after five months' observation we reported that in thirteen of twenty-three cases the psoriasis was at least markedly improved. In eight cases, most of the eruption had disappeared and only a few modified small lesions had persisted. In five cases, the eruption had vanished completely, these included patients with large infiltrated plaques of long standing, though three of these showed recurrences after from four to eight weeks of entire freedom from eruption.

The summary of these twenty-three cases on present records shows two cases of recovery after more than six years, one after five years with a recent recurrence in which the patient was also successfully treated by this method, one of recovery after two years and seven cases of recovery after from four to eight months and possibly longer (no later records available) with no severe recurrences.

Since that time, and including those cases, we have treated 133 patients. All of these had cases of generalized psoriasis. Some of them were of recent development, some were chronic with recent exacerbations and some were old cases that had more recently become active and generalized. Of these, twenty-one patients were not seen again following treatment; seven that responded satisfactorily to one treatment and were subsequently given two or three treatments were not heard from again, so that leaves twenty-nine cases out of consideration. In two of the remaining 104 patients the condition was definitely aggravated by the treatment; thirty did not show any effect that could be attributed to radiation, and twenty-eight showed temporary and partial involution of lesions definitely attributable to irradiation of the thymus. These patients were not, however, appreciably benefited and were included with the failures, making a total of fifty-seven cases that we considered failures, although a certain number of patients were not heard from and may have been benefited. The remaining forty-seven patients were sufficiently benefited to be considered successfully treated by the Brock method. Of these, the condition did not clear up entirely in twenty-two but showed prompt and

definite improvement of variable duration. In none of these cases did subsequent attacks show the severity of the attack for which the patient was originally treated. Some of these patients responded to second and third treatments. Ten were practically free from lesions for periods of from five to nine months. Fifteen were free or practically free from psoriasis for periods of from one to six years; three of these for one year, four for two years, three for three years, two for four years, one for five and one-half years and two for six years. Eight of these fifteen patients on which treatment was successful, are known to be free from psoriasis at present. Seventy-one of these cases in which the patients responded satisfactorily to the treatment were of the guttate and small mummular type. Fourteen cases were termed cases of "inveterate psoriasis," and of these only three showed response that was even temporary.

We would assume from our experience that this method of treatment for psoriasis is successful chiefly in the generalized type, with small guttate and mummular lesions, and we believe that our results justify a consideration of this method as a practical procedure in the treatment of some patients who have psoriasis.

DR. PAUTRIER, Strassburg, Germany: I have treated many of these patients by roentgen-ray irradiation of the thymus and have never had a good result. Last year I was invited to Prague and saw the originator of this treatment, and asked him what results he had obtained. He answered that there had been good results in a few cases, but in most of them no results. I think the question of treatment for psoriasis is not solved by this new treatment.

DR. GILCHRIST, Baltimore: Is this treatment used for hypofunction, hyperfunction or dysfunction of the thyms, and can cases in which good results will ensue be selected by the author? It has been shown that exposure to sunlight of a small portion of the surface of the skin in cases of rickets will improve the condition by mobilizing the calcium salts, so it may be possible that exposure of a small area of skin to the roentgen rays in psoriasis may cause general improvement. To prove this, it would be necessary only to expose another area of skin instead of the thymus area and see whether similar results would follow.

DR. IRVINE, Minneapolis: I feel grateful to Dr. Jamieson for calling our attention again to this method, for patients with psoriasis are always with us. A patient seen a short time after the presentation of Dr. Foerster's paper, a man of about 60, had psoriasis and exfoliating dermatitis with it. As the condition was intractable, we tried Dr. Foerster's treatment and followed his technic, and the condition cleared up remarkably well. The man returned just a week before I left home, and said that he had been free from the condition for five years until the present attack started a few weeks ago, and it was progressing to a generalized dermatitis again.

DR. SWEITZER, Minneapolis: After reading Dr. Foerster's paper, I used this treatment in a small series of cases. In the first case, I obtained a brilliant result, but in the succeeding cases I was disappointed. I understood that the results may have been obtained by the stimulation of the little remnants of the thymus gland, and thought of using thymus glands instead of roentgenotherapy. Assuming that the oral administration of thymus was of slight value, I corresponded with a Baltimore pharmaceutical house, and they made me an extract of thymus gland which I gave hypodermically to a certain number of patients, without beneficial results.

DR. COLE, Cleveland. Is not this simply a foreign protein reaction? Goeckerman has used the same treatment in lupus erythematosus and has irradiated the glands of the neck with notable benefit. The French use the same treatment in lichen planus, irradiating the interscapular area. Is it not all foreign protein therapy?

DR. JAMIESON, Detroit: Answering Dr. Cole first, we do not attempt to explain the action of the treatment. I do not pretend to know. It is purely hypothetic and empiric at present. We know the effect is good on patients who

have had psoriasis for years and have had all sorts of treatments. The patients themselves date their improvement from the time this form of treatment was begun, and we are more or less forced to believe that this treatment is responsible to a certain extent for the improvement. The two cases in which I think I have had the best results are cases in which the patients started treatment five or six years ago. They had had lesions for years and at present have only two or three on the knees. They have remained well ever since starting the treatment. I was sure that one patient's condition was aggravated by the treatment. While in only 10 per cent of our cases do we feel sure that the patients were improved definitely, I think in a disease like psoriasis any treatment that can be used without giving too much discomfort or distress should be given a trial at least. We do not advocate the method as a cure. In a small percentage, it is not a cure but a means of alleviating the disease.

I cannot answer Dr. Gilchrist's question. I do not know whether it is hypofunction or hyperfunction of the thymus, the question is all pure hypothesis. So far, while the cases in which the patients have responded to treatment in my series have been rather different from those reported as responding best by Dr. Foerster, it is impossible to give any idea at present regarding the type of case in which the patient will respond best.

I am glad to hear that Dr. Foerster has obtained favorable results with irradiation in the cases he first reported six years ago.

RINGWORM OF THE SCALP

TREATMENT WITH THALLIUM ACETATE

CLARENCE A. EARLE, M.D.
DESPLAINES, ILL.

During the last thirty-eight years, ringworm of the scalp has been the bane of the institution with which I am associated. There have been from six to forty cases of this condition. Every remedy that could be suggested was tried. Probably the best treatment, until roentgenotherapy was used, was Jackson's iodine and goose grease. With the advent of the roentgen ray, hope was entertained that this disease might be eradicated. Practically every patient treated by the one treatment plan was cured. It was sometimes difficult to get the parent's consent to the use of the roentgen ray, and the admission of new children kept up the infection. Partial alopecia resulted in one or two cases, and in one case, almost complete permanent epilation resulted. The fear of this distressing outcome seems to have made the roentgen-ray department of Cook County Hospital so cautious that for months from twenty-five to thirty patients were treated regularly without resulting epilation and consequently without cure. Having noticed in the *Journal of the American Medical Association* that S. J. Firth of London advocates the use of thallium acetate,[1] I at once determined to give it a trial. On September 24, I administered to twenty-six children the dose recommended by Firth. The drug is to be given by mouth in one dose and is in proportion to the weight of the patient—one-eighth grain (0.008 Gm.) to each 2¼ pounds (1.02 Kg.) of weight. The selective action of the drug is most striking. In from eight to ten days, hairs begin to get loose and bunches can easily be pulled out. All except one patient became bald. Hair came in slowly; four months after the patients had taken the medicine, all heads were covered with normal hair again. Twenty-four of twenty-six patients were cured. Eight of the twenty-six had more or less severe pain in the knees and ankles. One boy was in bed two or three weeks. Several had conjunctivitis. At no time was any child's life in danger. All are now in their usual health, and the institution is free from ringworm, with the exception of three patients, two of whom did not receive the treatment with thallium acetate.

EDITOR'S NOTE.—Dr. Earle is the physician for a large rural orphan asylum in Cook County which does not have the advantages of the services of a staff of specialists. He is a general practitioner and is

1. Firth, S. J.: Treatment of Ringworm with Thallium Acetate, Brit. M. J. **1**:1089, 1927; abstr. J. A. M. A. **89**:826 (Sept. 3) 1927.

responsible for all sorts of medical care in the institution. Fortunately, he has had a sound clinical training. I have many times talked over with him his problem of ringworm of the scalp. A few months ago he casually mentioned to me, as if it were not worthy of particular comment, that he was now getting splendid results by epilation with thallium acetate. I immediately pricked up my ears. At the time, as far as I knew, no one in this country had used the method in any large number of cases. It was only after a great deal of urging that he furnished me with this brief report. It seems to me highly instructive, not to say stimulating. Here is a general practitioner who, having a serious dermatologic situation to meet and reading in the literature concerning the use of this new and highly original method of meeting it, proceeds intelligently and in the most practical way to avail himself of it almost before any dermatologist has found occasion to do the same. It is an interesting illustration of the usefulness of the intelligent, well trained, general practitioner whom specialists are inclined to treat with such patronizing condescension; not to put overemphasis on the lesson which it offers dermatologists, on most of whom Dr. Earle has distinctly scored a beat.

W. A. P.

ALLERGIC DERMATOSES

H. H. HAZEN, M.D.
WASHINGTON, D. C.

As it seems highly probable that some of the substances to which the body can be sensitized are not protein in nature, it is better to speak of the resultant reaction as allergic.

ALLERGIC DISEASES

The diseases which should be included in this list are the following:

1. Allergic dermatitis, which may be either local or general.
2. Urticaria.
3. Erythema multiforme.
4. Purpura.
5. Neurodermite and some cases of simple lichenification.
6. Some cases of rosacea.
7. Dermatitis herpetiformis.
8. Infantile eczema.

Allergic Dermatitis.—A brief description of allergic dermatitis, neurodermite and lichenification is advisable in order that there may be no doubt as to the conditions described.

Allergic dermatitis is usually characterized by the recurrence of attacks. The intervals between attacks vary from one week to a number of years. The portions of the body involved are usually the face, neck, upper portions of the chest and the back, and the hands and arms. Frequently, covered portions of the body may be affected. The rash usually starts as a macular one, but later it may be maculopapular, papular or even vesicular, and still later the lesions are often frankly squamous. In severe cases, oozing almost invariably occurs. At the onset there are numerous discrete lesions, but these usually become confluent. The color varies from pale pink to deep red. Ordinarily, scaling occurs early in the course of the disease. In certain instances, the lesions closely resemble those of pityriasis rosea. The lesions of this condition may be sharply confined to a small portion of the skin. The latter distribution is usually due to an external irritant, such as face powder, but in some instances, may also be explained by a hypersusceptibility of a limited amount of surface. There is usually a rather intense itching or burning, but exceptionally subjective symptoms are absent.

Urticaria.—Urticaria is acute, subacute or chronic. It can be confined to the skin, in the ordinarily well known forms, or there may be a giant urticaria involving the skin or mucous membranes.

In exceptional instances, death results from the latter type, especially from edema of the larynx. One of my patients who was extremely susceptible to the meat of chicken lost his life through an urticaria resulting from eating this meat. Apparently the attending physician failed to administer suprarenalin in time.

Neurodermite.—Neurodermite is an extremely unfortunate term, but one which has not been superseded by a better one. It is probably a modification of a simple lichenification. Like allergic dermatitis, it is essentially a recurring condition.

The areas involved by neurodermite are highly characteristic. There is usually a collar some 2 or 3 inches in width that extends around the neck; the axillae, flexor surfaces of the elbows, and frequently the backs of the knees are more or less constantly involved. In severe cases, the face and a considerable portion of the trunk may be affected. The disease starts as red papules which speedily form in closely set lines. The whole area becomes thickened. In severe cases, some oozing may occur. The color varies from that of a brilliant inflammation to that of a marked hyperpigmentation. During an exacerbation, the itching is usually intense.

Lichenification.—Lichenification is attributed to an itching that is later irritated. The lesions resemble those of neurodermite, but are less severe. They are most commonly seen around the neck, but may also occur on the arms or legs. These conditions have been well described by Wise and Highman.

Rosacea.—Rosacea, which is confined to the nose, may exceptionally be caused by the inhalation of pollens, dust or some irritating substance.

There are certain predisposing causes which are sometimes of great importance. Lack of rest or sleep, worry, constipation, a diet rich in fats or sugars, an instability of the vegetative nervous system or of the ductless glands unquestionably predispose toward hypersensitiveness. The use of woolen goods or of furs, an excessive amount of soap and water or any local irritation may predispose toward an outbreak of the more local type. Nervous instability or unhappiness is frequently a marked predisposing cause for neurodermite.

SUBSTANCES CAUSING ALLERGY

Substances to which the body may be allergic may be divided into the following groups:

1. The cosmetics.
2. Drugs taken internally.
3. Pollens or the juices of such irritating plants as the poison ivy.
4. Animal hairs or dandruff.
5. House or street dust.

6. Fur, woolen or dyed goods.
7. Such household articles as goose feather pillows, hair mattresses or woolen blankets.
8. Such household substances as insecticides and dyes.
9. Foods.
10. Colonic absorption.
11. Allergic substances in the course of a person's work.
12. Bacterial substances from so-called focal infections.
13. Irritability of the vegetative nervous system.
14. Physical agents such as light and cold.
15. Endocrine disturbances.

The cosmetics the use of which is most apt to be followed by an allergic dermatitis are powders which contain orris root and hair tonics which contain resorcin. Either cold creams or cleansing creams, especially those supplied by the various beauty shops, are frequently responsible for these disturbances.

Many drugs and serums may be the cause of allergic eruptions, which are usually widespread. Notable among such products are horse serum, various coal tar products, quinine, arsphenamine and phenolphthalein. Many more might be mentioned.

Poison ivy, primrose and lacquer are responsible for cutaneous outbreaks which are undoubtedly more or less allergic. Occasionally, a dermatitis may be associated with a true hay-fever due to some of the well known pollens. In these cases, desensitization is more successful for the hay-fever than for the cutaneous conditions.

Animal hair or dandruff is responsible for a few widespread allergic eruptions, which are associated with asthma. The commonest is horse dander. Persons who come in contact with horses may show severe skin manifestations. It should always be remembered that one who is susceptible to horse dander may have an attack precipitated by sleeping on a hair mattress or even by contact with the hair used to stiffen the shoulders of coats. Furs, even though not dyed or dressed with a poisonous substance, may cause eruptions in susceptible persons.

Most of the eruptions alleged to be due to furs, however, are really due to paraphenylendiamine, a substance only too frequently used as a constituent of dyes or mordants. Feather pillows, especially goose feather pillows, are frequently excitants.

Both house dust and street dust, because of the large number of substances contained in them, not infrequently act as allergens. Wind or sweeping will excite the trouble in persons susceptible to the dusts.

The effect of fur has already been considered. Woolen underwear may not only be distinctly irritating, but may also possess

allergic properties. Rough woolen coats, usually of tweed, probably cause irritation more on account of their physical properties than their allergic ones. Rough wool blankets may be either irritating or allergic. Various household substances may excite attacks. These substances are so numerous that identification is sometimes almost impossible. Stokes tells of one case which was caused by a new chicken feed, and I have seen a case due to a spray used for killing insects. Dyes used for clothes are occasionally responsible. Practically any food may be a causative factor. Most of the textbooks refer freely to the sea foods, but these statements are probably due to tradition rather than to observation. It is highly probable that nuts and chocolate are much more frequently the cause of these dermatoses than all other substances combined, although sometimes wheat products or milk may be the causative factor.

It is well known that urticaria is frequently caused by some product generated in a sluggish colon, although it would be a brave man who would dare to guess just what this substance may be. At all events, persons who are chronically constipated frequently show an urticaria that subsides promptly after lavage of the colon.

Hundreds of substances encountered in the course of work may be the cause of various dermatoses. This is especially true of work with animal hairs or with products of various plants. Identification of these substances is often most difficult.

Foreign proteins derived from local infections of bacteria are not infrequently responsible. In searching for so-called focal infection, the following sources must be borne in mind: tonsils, teeth, lymphoid tissues of the mouth or pharynx, the sinuses, the bronchi, the appendix, the gallbladder, the kidneys, the bladder and the genital tract. In exceptional instances, it is possible that cutaneous infections may occur in the same way. Apparently erythema multiforme and a few cases of purpura are due to such foreign proteins.

Irritability of the vegetative nervous system associated with allergic skin diseases often takes the form of vagotonia. It is an open question whether the disturbed nervous system is responsible for the cutaneous manifestations or whether both are due to a common cause. The endocrine glands are frequently considered causes of practically every known disorder, and of course, this includes many allergic conditions. The answer to this claim is simple: it has not been proved.

Certain physical agents have been shown by Duke to be the cause of some allergic conditions. Heat, cold, various electrical discharges and sunlight or the ultraviolet ray are the most frequent agents. I can recall one case in which the ultraviolet ray was used in treating a patient who was allergic to it.

In summarizing, it may be said that the commonest causes of allergic dermatitis are the cosmetics, fur, orris root contained in various face powders, henna dips or rinses and irritating hair tonics.

Urticaria may be due to drugs, foods, absorption from the colon, bacterial proteins and, more rarely, animal parasites.

Erythema multiforme is most frequently due to bacterial proteins. Purpura likewise is not infrequently the result of an infectious process, although many chemical poisons may be responsible.

The causes of neurodermite and simple lichenification are not so well understood. Many of the cases associated with vagotonia or with true asthma are difficult to elucidate. There is one undoubted group of cases in which an irritable nervous system is frequently responsible and which may presage a serious neurosis or psychosis. Another group is truly allergic.

The causes of dermatitis herpetiformis are even less understood. However, the general course of the disease, association with urticaria and the existence of an eosinophilia at some stage of the disease, suggests an allergic cause.

It seems strange that the origin of so common a disease as infantile eczema should not be thoroughly known. However, a careful history will usually reveal that the trouble starts immediately after the infant is weaned or after the addition of some food in the diet.

Many of the allergic cases show other than cutaneous symptoms. The association of bronchial asthma or hay-fever with allergic dermatitis has long been noted. Many of the cases show a temporary lowering of the blood pressure. Eosinophilia is frequent during some stage of many of these conditions. A diminution of the blood calcium content is claimed to be associated; however, this is still unproved.

The identification of the provocative substance is necessary if one expects a permanent cure. This is frequently difficult and may demand a high degree of detective ability. In making a diagnosis, several means are helpful. Unquestionably, as Brown has emphasized, the most important of these is the taking of a careful history and the elimination of the suspected article. Cutaneous reactions are frequently employed but are far from ideal. The use of a small particle of the suspected causal substance placed on a thoroughly clean skin, dampened and covered with a fixed dressing, may yield a clue. In cases in which the eruption is purely local, the use of a fixed dressing that will keep out foreign material may be of diagnostic aid.

IMPORTANCE OF DETAILED HISTORY

A detailed history must be obtained, and the ability of the patient to forget completely certain important points must always be remem-

bered. The use of a typewritten questionnaire which the patient fills in at home is of great assistance, and he should be instructed to take at least two days for this purpose. The effect of vacations, change of residence or employment must always be determined. It is extremely important to learn in what season of the year the attacks are the most frequent.

In taking the history, the questions should be directed toward obtaining information concerning the use of cosmetics, drugs and contact with pollens or plants, animal hairs, house or street dusts, furs, woolen or dyed goods, goose feathers, pillows, hair mattresses and woolen blankets. The diet should be carefully noted, and it always should be remembered that the poisons come in small packages; occasionally the taking of even a little pepper or chocolate may be causative. One should not neglect to obtain information concerning foods eaten between meals. The possibility of colon absorption or of a focal infection is highly important. The effect of heat and cold should always be noted. Lastly, one should attempt to learn as much as possible of the condition of the vegetative nervous system.

The following history of a case exemplifies the importance of a careful study of the history.

The patient was an intelligent young girl, aged 19. She had shown an allergic dermatitis of a neurodermitic character since she was 1 year of age. There had been but one period, when she had been marooned on a small island on Lake Superior, that she had been free from the eruption. The one article of food which had been absent during the period was milk. As soon as all milk was removed from the diet, immediate recovery ensued. At the end of two weeks, skimmed milk was allowed for both cooking and drinking, and the eruption did not recur. The addition of a limited amount of cream to her diet resulted in an immediate recurrence. This was taken away from the diet, and the eruption again subsided.

CUTANEOUS TESTS AND TREATMENT

Cutaneous Tests.—Cutaneous tests do not have the same value in the diagnosis of allergic dermatoses as they do in hay-fever and asthma. There may be several reasons for this. Bernton tells me that in many instances the test substances used fail to show protein reaction. It is also possible that more attention should be paid to ultimate products of protein digestion. A considerable amount of work has been done with split proteins, but so far without results. Bernton goes so far as to say that he has not been able in any case to learn the allergic substance through the use of cutaneous tests. My own results have been poor, but there have been a few striking instances in which the tests have proved of great value. In the pure allergic dermatoses, orris root reacts satisfactorily in the majority of instances. Wool, silk,

house and street dusts and extracts from the skins of animals are also more or less satisfactory. In striking contrast to this is the failure of bacterial proteins. In one instance, a dermatitis of sixteen years' duration due to chocolate was discovered. In two instances, a dermatitis caused by nuts was likewise discovered. In infantile eczema, the food tests may result in learning the cause of the condition. An allergic patient is only too often susceptible to a large number of different substances, sometimes as many as thirty or forty. Naturally the removal of a suspected substance resulting in the prompt disappearance of the eruption and its recurrence following the use of this substance comprise the ultimate diagnostic test. In certain instances, it is difficult to determine whether an eruption is due to a purely chemical irritation or whether it is due to an allergic substance. In such instances, the use of a fixed dressing will result in the disappearance of the eruption if an external irritation has been the causative factor.

Treatment.—The treatment in this group of diseases is extremely interesting. The general health of the patient must be carefully considered, and both local and general treatment must be employed with a certain degree of skill if one expects to accomplish results. It is found only too often that the patient's mode of life must be considerably changed. Many of the cases occur in young women who are burning the candle at both ends; the bon vivant is likewise a frequent sufferer. Whenever possible, the patient should take a complete rest of one hour following the noon meal. Certain changes in the diet seem to be of aid in many instances. The following substances should be omitted: salt or smoked fish, lobster, scallops, crabs, fat or greasy meat of any type, pork, pickles, gravies, cheeses, nuts and excess of condiments, more than two cups of tea or coffee a day, all uncooked vegetables, whipped cream, pastry, hot breads, cakes or waffles. Any local infection should be removed. If the blood pressure is low, more rest should be taken and a dried suprarenal extract should be employed. So far as is possible, psychic irritation should be eliminated. Instructing a patient "not to worry" is silly and inefficacious. He should take systematic exercise in the open air.

As an aid to general treatment, the use of the ultraviolet air cooled lamp is to be commended. An exposure just sufficient to cause a slight erythema should be used for systemic effect. In severe cases of chronic urticaria, a marked erythema seems necessary to produce prompt results. I treated three patients with severe cases of long standing examples of this condition who were permanently cured. It is probable that the results of an ultraviolet burn are somewhat analogous to those resulting from a true burn, and that certain protein substances thrown into the circulation are responsible for the results. Large

doses of calcium lactate taken on an empty stomach seem to aid the action of the lamp in some instances. Calcium lactate alone is rarely of great benefit, especially in cases of urticaria. The use of lavage of the colon has been of great aid in treating patients who have urticaria, but the result is usually disappointing in the treatment of patients with other diseases of the allergic group. Nonspecific protein therapy deserves a trial in cases in which the urticaria is intractable.

Locally a soothing lotion with sufficient body to act as a protection is essential. A calamine lotion containing 1½ ounces (45 cc.) of calamine to 6 ounces (180 cc.) of lime water is just as effective as the usual traditional favored prescriptions for this remedy. This should be applied generously, except in urticaria, and the excess should be wiped off once a day with olive oil. The greatest gentleness must be exercised in this maneuver. Just as soon as the lesions become dry, Lassar's paste with a little salicylic acid should be substituted. This must also be used thickly. Local treatment with the ultraviolet lamp in small doses is likewise beneficial, and this renders the use of the roentgen ray unnecessary. If it is decided to employ the last mentioned therapeutic agent, one-eighth unit doses should be given twice a week. This dosage will give more prompt results than one-fourth unit doses given at intervals of seven days. Infantile eczema is often improved by the use of crude coal tar ointment. It is rather difficult to understand why a patient with an allergic disease should be so promptly benefited by any external application.

For treatment of patients with urticaria, various antipruritics are frequently necessary. An alcoholic lotion containing small doses of salicylic acid, menthol and thymol is often of great aid.

Attempts to desensitize patients suffering from any allergic dermatoses have been a dismal failure, both in my own hand and in the hands of specialists in this work. I have seen a patient suffering from ragweed dermatitis and hay-fever who was cured of the latter condition but not even relieved of the former. In attempting desensitization, one first learns the smallest dose of protein which will produce a characteristic cutaneous reaction. The first dose of protein is one-sixth of this amount. Subsequent injections are given at intervals of five days, and the dosage is increased one-third or one-half at each injection.

The following study of 320 consecutive patients includes only those who were under observation for a sufficiently long time to be carefully studied. Naturally many patients have neither the patience nor the intelligence to appreciate the time and effort that are required to complete a satisfactory study. Table 1 shows the exciting agents in this group of diseases.

TABLE 1.—*Exciting Agents in Various Dermatoses Studied*

Allergic Dermatitis:			
Face or body powder	25	Wool blankets	1
Hair tonic	5	Wool clothes	6
Cold cream	3	Silk	1
Henna rinse	4	Dust	4
Henna operator	1	Uncooked vegetables	2
Paraphenylendiamine workers	2	Chocolate	1
Paraphenylendiamine	2	Nuts	1
Soap	8	Multiple	3
Fur	12	Plant	1
Infected teeth	1	Horse dander	1
Pyelitis	2	Ragweed	1
Arsphenamine	1	Trichophytid	2
Quinine	6	Insect spray	1
Infected tonsils	1	Undetermined	25
Phenolphthalein	2		
Colonic absorption	1	Total	127
Urticaria:			
Colon absorption	6	Nuts	3
Phenolphthalein	2	Mosquito bites	1
Teeth	2	Ultraviolet rays	2
Syphilis	2	Undetermined	26
Scabies	15		
Chicken	2	Total	61
Infantile Eczema:			
Potatoes and wool	1	Undetermined	4
Wheat	1		
		Total	6
Neurodermitis:			
Cream	1	Dust	2
Chocolate	1	Vagotonia	14
Wheat	2	Goose feathers	2
Multiple food	2	Horse dander	2
Trichophytid	2	Ragweed	1
Fur	10	Undetermined	40
Powder	8		
		Total	87
Rosacea:			
Goose feathers	1	Undetermined	14
		Total	15
Dermatitis herpetiformis:			
Infected teeth	1	Undetermined	8
		Total	9
Erythema Multiforme:			
Tonsils	3	Undetermined	12
Oysters	1		
		Total	16

Of 320 cases, 129 remained unsolved.

Table 2 shows the frequency of the various allergic substances.

TABLE 2.—*Frequency of Various Allergic Substances*

Cosmetics:			
Toilet powders	33	Soap	8
Hair tonic	5	Paraphenylendiamine	4
Cold cream	3		
Henna	5	Total	58
Clothes and bedding:			
Fur	22	Goose feathers	3
Wool blankets	1	Hair mattresses	2
Wool clothes	7		
Silk	1	Total	36
Colon absorption; Infections:			
Syphilis	2	Infected tonsils	4
Trichophytid	4	Pyelitis	2
Scabies	15		
Infected teeth	4	Total	31
Foods:			
Chocolate	2	Potatoes	1
Nuts	4	Wheat	3
Uncooked vegetables	2	Cream	1
Oysters	1	Multiple	5
Chicken	2		
		Total	21
Drugs:			
Arsphenamine	6	Phenolphthalein	4
Quinine	2		
		Total	12
Miscellaneous:			
Dust	6	Ultraviolet rays	2
Insect sprays	1	Vagotonic	14
Insect bites	1		
Horse dander	2	Total	26

COMMENT

The patients who reacted to horse dander also reacted to hair mattresses. This explains a slight discrepancy in figures.

The objection might be made that many of the cases are examples of dermatitis venenata rather than of allergic dermatitis, but care has been taken to select only those cases in which there could be no doubt.

Two cases in which the dermatoses were of unsolved origin are worthy of comment. The first patient, a young married woman, had suffered continuously for eighteen years from urticaria except during her pregnancies. Extract of corpus luteum did not have any effect. The second patient, a young girl, suffered from severe attacks of urticaria following every long automobile ride, in any car, at any season of the year and in any part of the country.

Such cases are numerous and it would take a Solomon or a Sherlock Holmes to solve some of the mysteries. When one considers the newness of the subject, it is probable that before long many additional puzzles will be elucidated.

THE USE OF EPHEDRINE IN CONTROLLING REACTIONS TO ARSPHENAMINE

JOHN H. STOKES, M.D.
AND
MARY C. McINTYRE, M.D.
PHILADELPHIA

Epinephrine is definitely known to give immediate relief for certain reactions due to arsphenamine; and since ephedrine, made from the Chinese plant Ma Huang, has some of the properties of epinephrine, it occurred to one of us (J. H. S.) that it might be of value to study its effect in those patients showing reaction to injections of compounds of arsphenamine. The larger number of patients here studied received arsphenamine; the lesser number, bismuth arsphenamine sulphonate.[1] Reactions to neoarsphenamine are few, so that patients receiving this drug are not included in this survey.

HISTORICAL

In 1913, Milian [2] stated that anaphylactoid reactions to arsphenamine, such as hyperemia and edema, which are chiefly due to dilation of blood vessels, may be prevented by drugs having the power of vasoconstriction. Since epinephrine has such power, it has been the drug of choice in the treatment and prevention of nitritoid crises. Hoke and Rihl [3] showed that the injection of arsphenamine was followed, under certain conditions, by a fall in systemic blood pressure. Sieskind,[4] in 1911, and Luethin,[5] in 1913, confirmed the work of Hoke and Rihl. This fall in blood pressure is proportional not only to the size of the dose, but to the rate of injection. Oliver, Yamada and Kolos [6] found a fall in blood pressure in rabbits from 106 to 48 mm. in thirty-five minutes after an injection of 0.05 Gm. arsphenamine per kilogram of body weight, and a rise to 72 mm. in the next six minutes. Brown and Pearce [7] found

1. Stokes, J. H., and Chambers, S. O.: Bismuth Arsphenamine Sulphonate; Clinical Observations on New Arsphenamine Synthetic in Treatment of Syphilis, J. A. M. A. **89**:1500 (Oct. 29) 1927.

2. Milian: Société médicale de hôpitaux de Paris, Tove, vol. 37, 1914; referred to in Zentralbl. f. Bakteriol., Referate, vol. 62, no. 5.

3. Hoke, E., and Rihl, J.: Ztschr. f. exper. Path. u. Therap. **9**:332, 1911.

4. Sieskind, R.: München. med. Wchnschr. **58**:556, 1911.

5. Luethin: Ztschr. f. exper. Pathol. u. Therap. **13**:495, 1913.

6. Oliver, J.; Yamada, S. S., and Kolos, Frank: Biologic Reactions of Arsphenamine; Reduction of Its Toxicity by Combination with Hydrophil Colloids, Arch. Dermat. & Syph. **8**:1 (April) 1923.

7. Brown and Pearce: J. Exper. Med. **22**:535, 1915.

that a large amount of arsphenamine produced a weakened chromaffinic reaction in the suprarenal medulla, and they believed that a therapeutic dose might produce an increase. Jackson and Smith [8] observed that the fall in blood pressure was preceded by a rise in the pulmonary circulation. Januske and Pollak,[9] in 1911, and Park,[10] in 1912, expressed the belief that epinephrine caused a relaxation of bronchi. Dixon and Brodu, cited by Park, disagreed. In 1919, Hirano,[11] experimenting with arsphenamine injected into rabbits, found that the first injection seldom produced an anaphylactoid reaction. While studying the epinephrine content of the suprarenals of these animals, he observed a remarkable decrease and explained the absence of reaction by the ability of normal animals to compensate for the deficit of epinephrine content in the circulating blood caused by the injection. After the second injection, he observed an anaphylactoid reaction and also found that the epinephrine content of the suprarenals was not decreased. The epinephrine content of the suprarenals, after injections of neoarsphenamine, was found to be remarkably decreased. Hirano offered the explanation that the change in the secretory function of the suprarenal glands of rabbits receiving arsphenamine may be explained by the assumption that the excitability of the splanchnic nerves has been so increased by repeated injections that a small quantity, such as would produce no effect on the nerves of untreated animals, would cause stimulation in treated ones. Hanzlik [12] stated that arsphenamine and neoarsphenamine do not per se demonstrably affect the autonomic nerves of the alimentary tract and uterus and probably also the circulation. Therefore, the assumption that nitritoid crises are due to some functional alteration or involvement of the autonomic nervous system is not sustained. The basis for nitritoid reaction is probably a physicochemical change in blood and tissue.

The salient facts to be gathered are: (1) Injections of arsphenamine cause a fall in blood pressure; (2) the fall in blood pressure is preceded by a rise in pulmonary circulation; (3) anaphylactic reactions can be prevented by drugs having the power to constrict blood vessels; (4) there is a decrease of epinephrine content of the suprarenal after the first injection of arsphenamine; (5) anaphylactic reactions seldom occur with the first injections of arsphenamine, owing to the power of normal ani-

---

8. Jackson, D. E., and Smith, M. I.: J. Pharmacol. & Exper. Therap. **12**:221, 1918.

9. Januske, H., and Pollak, L.: Arch. f. exper. Path. u. Pharmakol. **66**:205, 1911.

10. Park, A. E.: J. Exper. Med. **16**:558, 1912.

11. Hirano, N.: Kitasato Arch. Exper. Med. **3**:42 (April) 1919.

12. Hanzlik, Paul, and Thienes, C. H.: Alleged Stimulation of Autonomic System in Arsphenamine Reactions, Arch. Dermat. & Syph. **14**:382 (Oct.) 1916. Hanzlik, Paul: California & West. Med. **23**:161 (Feb.) 1925.

mals to compensate for the deficit of epinephrine content of the circulating blood caused by the injection; (6) there is no decrease in the epinephrine content of the suprarenals after subsequent injections of arsphenamine; (7) injections of neoarsphenamine cause a remarkable decrease of epinephrine content; (8) bronchi are relaxed by epinephrine.

MATERIAL STUDIED

A study of the action of ephedrine was begun a year ago in order to determine what relief it would afford to those receiving arsphenamine who showed reaction to its injection. The symptoms complained of were mostly nausea, headache, vertigo, chills, urticaria, pruritus, pains in the chest and the sacrum, choking and coughing.

For want of a better term, we shall designate a course of ephedrine as one consisting of 50 mg. daily, by mouth.

Sixty-eight patients were followed for varying periods of time. Because of the difficulty in persuading patients to be regular in their attendance, some were followed for a shorter period than is desirable for accurate observation. The longest period of observation was nine weeks and the shortest one week. The course of ephedrine ranged from five down to two (50 mg.) capsules.

There were thirty-two patients complaining of nausea alone, one of headache, one of vertigo, ten of nausea and headache, seven of nausea and dizziness, six of nausea, headache and dizziness, one of nausea, dizziness and urticaria, four of pruritus, one of nausea and pruritus, one of pain in the chest and the sacrum and one of repeated nitritoid crises.

Thirty-nine patients, or 57.5 per cent, showed relief from symptoms following the use of ephedrine; seventeen, or one-half, showed recurrence of symptoms when ephedrine was discontinued.

Of thirty-two with nausea, twenty-three showed complete relief, five never returned, three were partially relieved and one was made distinctly worse. The patient with nitritoid crises as an initial symptom was relieved after the third course, but could not be followed because the Bezredka maneuver was instituted, complicating the results in the fourth course. The patient who complained only of headache was entirely relieved. Of ten patients with nausea and headache, five were entirely relieved, three never returned, one was partially relieved and one not at all. One patient with pain in the chest and sacrum was entirely relieved after two courses of ephedrine and was able to take the injections without ephedrine and without symptoms. The patient who complained of urticaria alone was not followed sufficiently long, although relief was indicated. The four patients with pruritus were entirely relieved, two of them showing recurrence when not taking ephedrine. Of the seven patients with nausea and dizziness, five were relieved, and

one was partially relieved, while one did not receive any relief. Of the six patients with nausea, headache and dizziness, four were relieved, one never returned and one had no relief from symptoms.

Of the group (forty patients) who were relieved from their symptoms by ephedrine and in whom the drug was then discontinued, twenty-seven showed recurrence of symptoms; thirteen did not.

One patient who complained of nausea and who was relieved by the first course of ephedrine developed a nitritoid reaction from an injection a week after the administration of ephedrine was stopped. Ephedrine was again given, and a nitritoid reaction did not occur. The patient was allowed to go without ephedrine for one week, and the nitritoid crises reappeared. Ephedrine was then given each week during the rest of the course of arsphenamine without nitritoid crises or nausea developing.

In eleven cases, the blood pressure was observed after injection of arsphenamine and found to have fallen 28 mm. as an average. Ephedrine given to this same group of persons (50 mg. a day) caused the average fall in blood pressure to become 6 mm.

There was a group of twenty-three patients in whom choking was invariably observed during an injection of arsphenamine. Of this group, nineteen were completely relieved; two were partially relieved, and two did not return.

COMMENT

Ephedrine was discovered by Nagai in 1887; its physiologic properties were studied and reported by Chen and Schmidt in 1924,[13] and its clinical application by Miller.[14] Chen and Schmidt showed that ephedrine has some relaxing effect on bronchial musculature, and Miller [15] and Thomas [16] presented cases of asthma in which the patient was relieved by its use. Kester [17] expressed the opinion that the benefit of ephedrine in urticaria is indisputable.

Anaphylactoid reactions, according to Milian, and the choking and cough seen during injections of arsphenamine, according to Januske and Pollak and Park, are due to relaxation of the vessels and bronchi, and epinephrine has been used for immediate relief from reactions to arsphenamine, but its effect is not of long duration. Since ephedrine has been shown to have its maximum effect in three hours and can be administered orally, it seemed to us that it would be worth while to observe the results it would afford in these disconcerting and, at times, serious

13. Chen and Schmidt: J. Pharmacol. & Exper. Therap. **24**:339, 1924.
14. Miller, T. G.: Am. J. M. Sc. **170**:157, 1925.
15. Miller, T. G.: Ann. Clin. Med. **4**:713, 1926.
16. Thomas, W. S.: Am. J. M. Sc. **171**:719, 1926.
17. Kester, Beatrice: Treatment of Urticaria with Ephedrine, Arch. Dermat. & Syph. **16**:189 (Aug.) 1926.

reactions to arsphenamine. At the outset we used small doses of ephedrine (50 mg. once a day), but we found in a series now being studied, and not included in this paper, that the vertigo occasionally due to it was overcome by the use of larger doses (50 mg.) 3 times a day.

The results obtained in the series of sixty-eight cases here presented (relief from symptoms due to arsphenamine in 57.5 per cent of the cases) would seem to warrant further study of the drug as an adjunct to epinephrine in the treatment of patients who have reactions due to arsphenamine.

The fall in blood pressure caused by arsphenamine which we observed in eleven cases coincides with the observations of Oliver, Yamada and Kolos, but to a lesser degree, and the rise in blood pressure due to ephedrine agrees with the known action of ephedrine and with the observations of Middleton and Chen [18] in their work on ephedrine.

The relief from choking and coughing would appear to be due to the action of epinephrine on relaxing bronchi, if the theory of Januske and Pollak, and of Park, that arsphenamine constricts bronchi, is true. This is borne out by observations on twenty-three patients who presented those symptoms.

CONCLUSION

1. Ephedrine gave relief in certain reactions due to arsphenamine in 57.5 per cent of the sixty-eight cases studied.

2. Ephedrine may be used to combat fall in blood pressure observed in certain patients reacting to arsphenamine.

3. Relief from choking and coughing due to arsphenamine was afforded by ephedrine owing to its relaxing effect on bronchial musculature.

---

18. Middleton, W. S., and Chen, K. K.: Ephedrine; Clinical Study, Arch. Int. Med. **39**:385 (March) 1927.

WORKING FORMULA OF RUGGLES CREAM

E. WOOD RUGGLES, M.D.
ROCHESTER, N. Y.

I have received many requests for a working formula for the cream which I suggested a few years ago, as well as requests for its publication. The following formula gives a good and practically uniform product, if the compounding is done by a careful pharamacist who takes pride in his results.

	Cc.
Powdered stearic acid (Merck's)	75.0
Potassium carbonate	15.0
Water	320.0
Powdered borax	5.0
Quince jelly	75.0
Water	100.00
Zinc oxide	10.00
Glycerite starch	400.0

Melt the stearic acid. At the same time, dissolve the potassium carbonate in 320 cc. of water and heat to about 170 F. on the hot water bath. Bring the stearic acid to the same temperature and mix the two. Continue this temperature on a hot water bath, and stir occasionally until the reaction is complete.

Dissolve the powdered borax in 100 cc. of water; add the quince jelly and heat on the hot water bath to about 170 F. Add this mixture to the first, which should be at the same temperature, and again leave on the hot water bath till the reaction is complete.

Heat the glycerite of starch to the same temperature, stir in the powdered zinc oxide with a glass stirring rod and add to the other mixture, stirring occasionally.

Let the mixture cool, add flavoring (oil Ylang Ylang recommended) and mill.

The most important essentials are to employ a perfect glycerite of starch and to bring it to the same temperature as the other ingredients when mixing the batches. Use Kingford's corn starch and U. S. P. chemically pure glycerin (Colgate's) and make the preparation up fresh for each batch.

At the best it is difficult to obtain an absolutely uniform preparation, and a San Francisco pharmacist who makes large quantities of the cream informed me that he had ruined large amounts of the cream several times by not having the component batches at a uniform temperature when mixing them.

348 University Avenue.

Abstracts from Current Literature

MICROPRECIPITATION TEST FOR SYPHILIS. M. G. PETERMAN, Arch. Path. **5**:445 (March) 1928.

A microprecipitation test is described which requires only 0.05 cc., or even 0.025 cc. (one-half drop), of serum that is of value in the examination of infants and children, from whom it is often difficult to obtain more than small amounts of blood. The test is simple, requiring a minimum of equipment, one reagent (Kahn's antigen) and a relatively short time for completion. The test has been found of value as a diagnostic one, particularly in cases of congenital syphilis, and a valuable guide in the treatment of patients with congenital syphilis.

WIEN, Chicago.

THE KAHN TEST IN PRIMARY SYPHILIS. J. C. WILLETT and N. NAGLE, J. A. M. A. **90**:1189 (April 14) 1928.

In 105 cases of primary syphilis, the Kahn test gave positive results in 80 per cent, and dark-field examination gave similar results in 60 per cent. The primary lesions were of less than twenty-eight days' duration in all but four of these cases. The Kahn test failed to detect syphilis in 20 per cent and the dark-field examination in 39 per cent of the cases. The authors think that simultaneous dark-field examination and Kahn test are advisable in primary syphilis.

LATE RESULTS FROM TRYPARSAMIDE THERAPY IN NEUROSYPHILIS. W. F. LORENZ, J. A. M. A. **90**:1285 (April 21) 1928.

The author has obtained information as to the present condition of 317 patients treated by him with tryparsamide and mercury in 1920 and 1921. Of the number who were recorded as recovered at that time, 87 per cent have continued without relapse. Some patients who were considered unimproved have shown definite improvement after continuation of tryparsamide therapy. In reviewing the cases for signs which indicated good or bad prognosis, Lorenz found no definite clinical or serologic symptoms associated with a favorable or unfavorable therapeutic response. Cases in which there were marked mental symptoms and pronounced serologic signs seemed to respond best. Early improvement in serologic observations and gain in weight are encouraging signs. Only a therapeutic trial will determine amenable and resistant cases. The therapeutic effort should be persistent; some patients respond very slowly, but eventually recover.

THE USE OF CARBON DIOXIDE SNOW IN TREATING BLASTOMYCOSIS. H. M. HEDGE, J. A. M. A. **90**:1367 (April 28) 1928.

In two cases of the localized type, Hedge obtained prompt cure by freezing the lesion with carbon dioxide snow. The lesions had resisted the usual remedies.

TULAREMIA: REPORT OF A FATAL CASE WITH POSTMORTEM OBSERVATIONS. R. BARDON and G. BERDEZ, J. A. M. A. **90**:1369 (April 28) 1928.

The patient died sixteen days after inoculation. This is stated to be the earliest case of the disease coming to autopsy. The viscera were studded with whitish foci, which on microscopic examination proved to be areas of necrosis. These observations correspond closely to that of experimental tularemia in rabbits.

POLLEN CONTENT OF THE AIR: RELATIONSHIP TO THE SYMPTOMS AND TREATMENT OF HAY-FEVER, ASTHMA AND ECZEMA. W. W. DUKE and O. C. DURHAM, J. A. M. A. **90**:1529 (May 12) 1928.

Duke says that the explanation for the variations in intensity of diseases due to surface reactions to pollens (hay-fever, asthma and eczema in some instances)

may be found in the variability of the pollen content of the air. By daily pollen count of the air, the vagaries in clinical symptoms of the diseases mentioned are elucidated. Comparative counts from various localities make it easy to explain why treatment of a given symptom which may be successful in one city in one year may be a total failure in another city or in the same city in a different year.

TREATMENT FOR SPLIT FINGER NAILS. W. W. CARTER, J. A. M. A. **90**:1619 (May 19) 1928.

The author's patient had a longitudinally split finger-nail which had defied treatment for years. It was cured by allowing the free margin to grow to some length and then holding it in apposition by sutures passed through holes drilled in the nail.

MICHAEL, Houston, Texas.

SARCOIDS AND RELATED LESIONS WITH SPECIAL REFERENCE TO SYSTEMIC FINDINGS. W. H. GOECKERMANN, Proc. Staff Meetings of Mayo Clinic **3**:125 (April 18) 1928.

The author cites six cases belonging to the general group of sarcoids. The most common systemic lesions associated with this group of dermatoses are miliary nodular infiltrations in the lungs, fibrocystic changes in the bones, enlarged spleen, adenopathy, atrophic rhinitis, chronic parotitis, iritis and jaundice.

RATTNER, Chicago.

NOTE ON TWO CASES OF ICHTHYOSIS BULLOSA. J. M. H. MACLEOD, Brit. J. Dermat. **40**:51 (Feb.) 1928.

Two cases are described, one in a boy, aged 9 months, and the other a girl, aged 6 years; both presented a harsh, dry, keratotic skin associated with bullae. Eight photographs showing points brought out accompany the article. Brief reference is made to cases in the literature, in which the rare occurrence of bullae in connection with ichthyosis is mentioned. In the cases here reported, the occurrence of many of the bullae so definitely in situations exposed to pressure or friction suggested that they were due to traumatism, and the flaccid character of the lesions seemed to indicate a relationship with epidermolysis bullosa.

CONGENITAL KERATOSES WITH BULLAE. W. N. GOLDSMITH, Brit. J. Dermat. **40**:59 (Feb.) 1928.

A case is reported in a boy, aged 7½ years, who presented congenital keratoses in association with bullae. The author raises the following interesting questions in his case: 1. Are the blisters traumatic, infective, dyshidrotic or pemphigoid? 2. If infective, is it external in origin or blood borne? 3. What is their relation with the fever? 4. What is their connection with the ichthyosiform erythrodermia? The literature bearing on the subject is reviewed, with a review of case reports, before the question is discussed. In the case described, the congenital ichthyosiform erythroderma was accompanied by a persistent streptococcal impetigo and fever of unknown origin.

WIEN, Chicago.

SOME PROBLEMS ASSOCIATED WITH THE TRANSMISSION OF SYPHILIS TO THE SECOND AND THIRD GENERATION. DAVID N. NABARRO, Venereal Disease Information, N. S. Public Health Service **9**:135 (April 20) 1928.

The various theories as to mode of transmission from parents to offspring are reviewed with a full discussion of the germinative and placental modes. The author takes up the relative values of the Wassermann and flocculation tests, and attempts to explain the frequent occurrence of negative serologic tests in cases of syphilis. Familial neurosyphilis, he believes, is due not alone to a neurotropic strain of organisms, but to the similarity of soil on which the organ-

isms have grown. Cases are cited of syphilis in the third generation, which are designated "hereditary syphilis" referring to changes in the offspring due not to active and direct infection, but to germinal defects caused by parental syphilis.

RATTNER, Chicago.

THE RETICULO-ENDOTHELIAL SYSTEM IN PATHOLOGIC STATES. HUDELO and CAILLIAU, Ann. de dermat. et syph. **9**:145 (March) 1928.

In this memoir, the authors continue their exposition of this subject. In their first memoir they discussed the conception of the reticulo-endothelial system, described its morphology and outlined its functions. These functions are very complex, especially if one agrees with Masson in its importance as a defensive system.

To the intercellular and intracellular circulation studied by Masson and by Pautrier and Levy, the authors find reason to add another circulation: the translacunar. The free cells in the system (polyblasts, mast cells) are of considerable importance. They act as phagocytes. On occasion, giant cells appear; for example in tuberculosis, foreign body tumors, leprosy and other conditions. These cells adapt themselves to circumstances, becoming fibroblasts or fat cells when their defensive rôle is finished.

The work of Achard on the lacunar system is important for a complete understanding of the reticulo-endothelial system. Achard comprises in this lacunar system all those cellular interstices which are filled with the liquids of the organism. These interstices serve as highways for those ameboid cells (lymphocytes, polyblasts, cells, etc.) which are so important in the physiologic and defensive functions of the body.

The intercellular and intracellular circulation in the reticular system and the circulation of mobile cells in the spaces of the lacunar system have complementary functions, but without doubt, the reticulo-endothelial system plays the primordial rôle, both in the regulation of tissue exchanges and in the defense of the organism.

Besides these general considerations, the authors described changes in the reticulo-endothelial tissue in a number of disorders, both tegumental and visceral. The interested reader is referred for this to the original, as it does not permit of brief abstract.

ON THE EMBRYOLOGIC ORIGIN OF A PIGMENTED NEVUS OF THE ANO-VULVAL REGION. C. SIMON and C. GARNIER, Ann. d. dermat. et syph. **9**:163 (March) 1928.

The authors encountered a sharply defined symmetrical pigmented nevus of the anovulval region which they discuss from the point of view of its embryologic origin. They dismiss the idea of a nervous system of vascular origin. The situation of many angiomas at points of embryologic fissures is recalled, but does not fit their case. However, the nevus in their case was situated at a polar groove of the embryo and is therefore explainable on an embryologic basis.

AN AUTOCHTHONOUS CASE OF CUTANEOUS LEISHMANIOSIS AT CONSTANTINOPLE. R. ABIMELECH, Ann. d. dermat. et syph. **9**:168 (March) 1928.

The author describes three typical cases of oriental sore occurring in two sisters and a cousin. The older sister and cousin had resided near Aleppo, and the disease appeared only about two weeks after the elder sister's return to Constantinople, while in the cousin it had appeared before her return to that city. A younger sister of the first patient had remained in Constantinople. She developed the disease after the homecoming of her sister. This is the first autochthonous case of oriental sore that the author has encountered in Constantinople. It is common in districts in close communication with that city. The disease prevails in malarial regions, and the author is inclined to incriminate blood sucking insects as agents of its propagation.

THE TREATMENT OF LICHEN PLANUS BY RADIOTHERAPY OF THE SPINAL CORD AND SYMPATHETIC GANGLIONS. S. NEUMAHK and A. KRYNSKI, Ann. d. dermat et syph. **9**:175 (March) 1928.

The authors give a résumé of published results with this treatment. These reports show favorable effects in many cases, both with filtered and unfiltered radiation.

They have used this treatment in eight cases of the disease, employing a dose of from 3 to 6 Holzknecht units filtered through from 3 to 4 mm. of aluminum. They obtained a cure in three cases, in three others the condition was decidedly ameliorated, while in two cases of lichen planus verrucosus no appreciable effect was noted. More than one radiation was required. They therefore emphasize the importance of persistence in the treatment.

CASE OF "TRYPANIDES," A PRECOCIOUS ERUPTION IN SLEEPING SICKNESS. P. CHEVALLIER and G. LEVY, Bull. Soc. franç. de dermat. et syph. **35**:185, 1928.

The patient had been bitten by a fly *(Glossina palpalis)* and developed a continuous fever with systemic symptoms. These symptoms, which disappeared in a short time, were followed by a generalized eruption consisting of variously sized and shaped erythematous patches without subjective discomfort. It had lasted several months before being seen by the authors.

TREATMENT OF LUPUS ERYTHEMATOSUS WITH BISMUTH. A. SEZARY, Bull. Soc. franç. de dermat. et syph. **35**:187, 1928.

Further personal experiences (four cases) with this treatment are detailed by the author. In one there was rapid cure, in another a slower but similar end-result; in the third case, a rapid response was followed by a quick recurrence, while in the fourth case there was failure. The last case was an inveterate one of many years' duration.

MYELOID LEUKEMIA WITH POLYMORPHIC ERUPTION. HUDELO, CAILLIAU and CHENE, Bull. Soc. franç. de dermat. et syph. **35**:193, 1928.

The author's patient presented a generalized erythema with slightly thickened skin. Scattered papules and numerous vesicles and small bullae were present. On the face were a number of tumefactions without tendency to ulceration. The spleen was only moderately enlarged. The blood picture was definitely that of myeloid leukemia. Biopsy of the tumefactions revealed many myelocytes. This is a specific picture for the disease in question. The papular and vesicular elements showed only the ordinary inflammatory features. Filtered radiation of the spleen produced only transitory improvement. The case report is accompanied by a brief review of the literature.

KERATODERMA OF THE PALMS AND SOLES WITH DEFECTS OF THE NAILS, HAIR AND TEETH. HUDELO and RABUT, Bull. Soc. franç. de dermat. et syph. **35**:204, 1928.

A case is reported of congenital palmar and plantar keratoderma, with deformity of the nails, thin, dry and short hair, and absence of all but two teeth. The case had some, but not all, of the features of congenital ectodermal defect.

CHRONIC MIGRATORY PAPULO-CIRCINATE ERYTHEMA (DARIER). P. PHOTINOS, Bull. Soc. franç. de dermat. et syph. **35**:206, 1928.

In this typical case treatment with bismuth caused the disappearance of the first outbreak, but there were several recurrences, each responding with less and less promptness to the same remedy, until there was complete resistance to it.

BISMUTH IN CENTRIFUGAL ANNULAR ERYTHEMA. M. BURNIER, Bull. Soc. franç. de dermat. et syph. **35**:209, 1928.

In one case, Burnier obtained a quick cure with bismuth; in another there was recurrence after treatment with bismuth, and in the third bismuth failed to rout the eruption. The two best remedies in the disease are bismuth and autohemotherapy, but neither are entirely satisfactory.

LICHENIFICATION OF THE NECK DUE TO TRICHOPHYTON GRANULOSUM. MILIAN and T. PHOTINOS, Bull. Soc. franç. de dermat. et syph. **35**:212, 1928.

The authors report a case in which lichenification of the type of neurodermatitis was present apparently as a primary manifestation of the fungus infection.

A CASE OF DERMATITIS HERPETIFORMIS: (1) PIGMENTED BUCCAL PATCHES, (2) CONSIDERABLE IMPROVEMENT FOLLOWING INTRAVENOUS BROMIDE TREATMENT. L. HUET, HOROWITZ and LOTTE, Bull. Soc. franç. de dermat. et syph. **35**:219, 1928.

The authors indicate the occurrence of pigmented patches in the mouth, apparently as remains of previous bullae. The patches were brownish in color. The cutaneous manifestations of the disease were characteristic. Following a few intravenous injections of sodium bromide, there was complete cessation of the pruritus and decided recession of the objective manifestations. The authors were unaware of any previous record of pigmented patches in the mouth in this disease.

A CASE OF ORIENTAL SORE ACCOMPANIED BY CHRONIC LYMPHANGITIS OF THE FOREARM. JEANSELME, L. HUET and HOROWITZ, Bull. Soc. franç. de dermat. et syph. **35**:221, 1928.

In this case there were two lesions on the fingers. The superficial lymphatics of the forearm were palpable as sclerotic beaded bands forming a reticulated subcutaneous network. Leishman bodies were demonstrated in the sores and lymphatics. The authors mention that acute lymphangitis is a common feature of oriental sore, though the chronic fibrous type found in their case is undescribed.

ENORMOUS LYMPHANGIOMA OF THE LEGS. LORTAT-JACOB and BROSSE, Bull. Soc. franç. de dermat. et syph. **35**:225, 1928.

There was monstrous deformity of the legs due to chronic lymphangitis of the type elephantiasis nostras. The disorder was of thirty-one years' duration, beginning on the right leg with involvement of the left leg a year later. There were febrile attacks of moderate intensity. An operation was contemplated.

UNDESCRIBED RETICULATED AND CONFLUENT PIGMENTED PAPILLOMATOSIS. GOUGEROT and CARTEAUD, Bull. Soc. franç. de dermat. et syph. **35**:230, 1928.

The authors previously reported a case of this type. The present patient, aged 25, had noted the onset of the disorder three years before examination. It began with papillomatous lesions between the breasts, followed by pigmented, villous projections in the axillae. An indefinite reticulated pigmentation was present on the upper part of the abdomen.

A PHAGEDENIC AND PAPILLOMATOUS ULCERATION OF UNDETERMINED ORIGIN. GOUGEROT and P. THIROLOIX, Bull. Soc. franç. de dermat. et syph. **35**:231, 1928.

The authors describe a condition beginning in the left inguinal region which spread slowly over the abdomen and chest. The original lesion was furuncular.

This was replaced by an ulcerating process which healed after the active process had spread farther. It was accompanied by moderate fever and progressive weakness.

MALIGNANT INFECTIOUS LYMPHOGRANULOMATOSIS. LOUSTE, LEVY-FRANKEL and CAILLIAU, Bull. Soc. franç. de dermat. et syph. **35**:232, 1928.

The disease began with swelling of the cervical lymph glands. They receded after roentgenotherapy. Later, generalized pruritus and a polymorphic eruption appeared, and still later adenopathy again became evident. In an excised lymph node, a characteristic picture with many Sternberg cells was found.

EXTENSIVE TRICHOPHYTOSIS OF THE BACK. LOUSTE and BERTON, Bull. Soc. franç. de dermat. et syph. **35**:236, 1928.

The patient presented numerous lesions which had appeared apparently in a few days. Cultures confirmed the diagnosis. In this type of tineal infection, the authors believe that intravenous iodine medication (compound sodium of iodine or colloidal iodine) is indicated.

THE DEVELOPMENT OF JAUNDICE DURING ARSPHENAMINE TREATMENT IN A PATIENT WITH SECONDARY SYPHILIS; CONTINUATION OF TREATMENT WITH DISAPPEARANCE OF THE JAUNDICE. M. PINARD, LAFOURCADE and VERSINI, Bull. Soc. franç. de dermat. et syph. **35**:237, 1928.

The patient, who came under observation with a macular syphilis, was receiving intensive neoarsphenamine therapy when she developed icterus. There were no systemic disturbances. Specific medication was abandoned for a week without change in the condition. It was then recommenced (same drug) and after several doses the jaundice disappeared, no signs of intolerance having appeared meanwhile.

TWO CASES OF DERMATITIS EXFOLIATIVA NEONATORUM. F. CAILLIAU and WALTER, Bull. Soc. franç. de dermat. et syph. **35**:241, 1928.

The first patient was an infant 8 days of age. The disease began with bullae, which were replaced by vast erosive surfaces. By the eighth day the eruption was almost universal, and the child died. Autopsy showed only moderate congestion of the lungs. The second case was almost a replica of the first. Death also occurred. No significant observations were made at autopsy. Histologically in both cases, the skin showed thinning of the epidermis with parakeratosis, dilatation and proliferation of the papillary vessels. The collagen was unchanged, but there was hyperplasia of the sweat glands.

USE OF A PASTE AS ELECTROLYTE IN DERMATOLOGIC IONIZATION. M. GIRAUDEAU, Bull. Soc. franç. de dermat. et syph. **35**:245, 1928.

There are certain disadvantages to ionization with moist compresses that are overcome by the employment of a paste. The author uses a proprietary preparation which is a nearly perfect nonconductor. The solution to be introduced is mixed with the paste which is then thoroughly rubbed into the skin. The electrode is then applied to the thus treated surface.

SEROLOGIC STATISTICS OF THE OBSTETRICAL SERVICE AT TOULOUSE FOR 1927. L. CHATELLIER, Bull. Soc. franç. de dermat. et syph. **35**:248, 1928.

In the clinic there were 312 negative and 35 positive Wassermann tests; in the hospital, 465 negative and 48 positive results, hence, the positive tests were about 9.5 per cent of the total.

MICHAEL, Houston, Texas.

URTICARIA PIGMENTOSA. V. RAMIREZ, Gac. méd. **59**:51 (Feb.) 1928.

The author reports a case of urticaria pigmentosa in an obese woman, aged 26. The patient also suffered from dysmenorrhea. The administration of mixed glands—thyroid—ovary—suprarenal—seemed to influence the condition favorably.

TREATMENT OF CARDIOVASCULAR SYPHILIS. J. L. CARRERA, Prog. Clin. **36**:27 (Jan.) 1928.

Carrera found aortic disease in 50 per cent of postmortem examinations in cases of syphilis. Coronary sclerosis and gumma of the heart were rare. Chronic syphilitic myocarditis is, according to the author, very frequent. In all cases of cardiovascular syphilis, the author uses arsphenamine from the start, beginning with very small amounts, 0.05 Gm. every third day, gradually increasing to 0.1, 0.25 and up to 0.6 and 0.9 Gm. of neoarsphenamine. He uses little, if any, mercury. In some cases he advises the administration of digitalis when the condition of the myocardium requires it. He reports ninety cases of aortitis in which the patients were treated in this manner with good results. He finds bismuth inferior to arsphenamine. In cases of hypertension he uses arsphenamine also in increasing amounts, giving a total of about 10 Gm. during a course of treatment, associated with symptomatic treatment: trinitrin, benzyl benzoate, theobromine, etc. He uses potassium iodide intravenously in doses of 1 Gm. daily.

CONGENITAL CEREBROSPINAL SYPHILIS. A. GAREISO, Rev. méd. latino-am. **13**:429 (Dec.) 1927.

The patient was a child, aged 8, who died in dementia. The clinical diagnosis was juvenile paralysis. The symptoms were spastic paraplegia, spastic paralysis of the right arm and paralysis of the facial nerve of the same side. The test of the cerebrospinal fluid gave a positive reaction. The author considers the differential diagnosis with multiple sclerosis, Strümpell familial paraplegia and medullary tumors.

CUTANEOUS REACTION IN A CASE OF LEPROSY TREATED WITH X-RAY. M. CAMPLANI, Riforma med. **44**:314 (March 19) 1928.

In a case of leprosy with multiple lepromas and bullae and with mutilations of the extremities, the author noticed a generalized maculopapular eruption after irradiation of the skin with small doses of x-ray.

TREATMENT OF LUPUS ERYTHEMATOSUS WITH TUBERCULIN. A. ORO, Riforma med. **44**:276 (March 12) 1928.

Oro reports results obtained by him in fifty-one cases of lupus erythematosus in which the patients were treated with tuberculin. He used Koch's old tuberculin in the majority of cases but also used iodide tuberculin, methyl extract and tuberculin. He claims to have cured seventeen patients and caused improvement in twenty-one, while thirteen patients remained unimproved. He injects the tuberculin intracutaneously or subcutaneously and always begins with very small doses. The treatment lasts from two to six months.

TREATMENT OF DUHRING'S DISEASE BY ROENTGEN-RAY IRRADIATION OF THE SYMPATHETIC SYSTEM. C. MADERNA, Riforma med. **44**:459 (April 16) 1928.

The author reports excellent results in two patients with dermatitis herpetiformis who were treated by him. He irradiated the interscapular area and also the lumbosacral region with the same technic as that used in cases of lichen planus. In both cases, pruritus disappeared almost at once, and the lesions cleared up after two applications.

PARDO-CASTELLO, Havana.

DERMATOLOGIC ABSTRACTS

The Journal of the American Medical Association

Experimental Blacktongue: Yeast a Preventive. J. Goldberger and others, Pub. Health Rep. **43**:657 (March 23) 1928.

The blacktongue-producing potency of a basic experimental diet and of three modifications was tested by Goldberger and others, thirty-three times in thirty-one dogs with the production of thirty-three separate attacks of blacktongue. Only one of these attacks developed at the end of a period longer than sixty-one days. Experimental blacktongue is due to a dietary deficiency which is capable of being corrected by something contained in yeast. This something, or blacktongue preventive, in yeast is inactivated or destroyed by heat sufficient to char the yeast; it retains its preventive potency in large measure, if not entirely, after heating in the steam autoclave at a pressure of 15 pounds for seven and one-half hours, and it is absorbed from an acidulated aqueous extract of either dried yeast or yeast first autoclaved at a pressure of 15 pounds for two and one-half hours by English fullers' earth. It cannot be identified with any of the older well recognized dietary essentials, but is believed to be identical with the thermostable substance of Smith and Hendrick. The blacktongue preventive and the pellagra preventive are both present in yeast. Taken in conjunction with certain other evidence pointing to the fundamental identity of blacktongue and pellagra, this association strengthens the probability that the blacktongue preventive and the pellagra preventive, or vitamin P-P, are identical.

Ligature of Angular Vein as Preventive Measure in Facial Carbuncle. H. Bailey, Surg. Gynec. Obst. **46**:565 (April) 1928.

In a series of fifteen consecutive cases of thrombophlebitis of the cavernous sinus, Bailey found that four were due to a furuncle or carbuncle of the upper lip, and that three more originated in an infected gnat bite of the nose. It is therefore reasonable to assume that the angular vein, forming, as it does, a communicating link between the venous radicles of the upper lip and the ophthalmic plexus, constitutes a main channel by which infection passes into the venous system. Bailey reports three cases in which he ligated this vein to forestall spread of the infection.

Value of Bismuth Therapy in Syphilis. C. Levaditi and L. Fournier, Lancet **1**:692 (April 7) 1928.

Levaditi and Fournier endorse the usefulness of the bismuth method of treatment by mouth in all cases of syphilis in which treatment by injection is contraindicated, or in which it is necessary to employ a method of treatment that is convenient and well tolerated by the patient.

Cancer of the Tongue. N. Capizzano, Rev. méd. latino-am. **13**:464 (Dec.) 1927.

In 143 cases of lingual carcinoma in which the patients were treated with radium, there were 19.94 per cent of three-year cures. Many of the patients were first seen with the whole tongue as well as the cervical glands already involved.

Mild Leprosy. G. M. Caballero, Vida Nueva **21**:1 (Jan. 15) 1928.

In Cuba for a number of years the term "clappa" (mutilating acropathy) has been applied to a combination of sporotrichosis with leprosy. The disease is recognized by its rather acute onset and preference for the extremities. New nonleprous lesions may develop secondarily. Septic processes may even threaten life. The ulcers may heal, and leave as the only sign of the disease some sinuses and scars. Caballero describes twelve typical cases.

TREATMENT OF LUPUS ERYTHEMATOSUS. B. SÁENZ, Vida Nueva **21**:75 (Feb. 15) 1928.

Since 1925, Sáenz has treated twenty-one patients with lupus by administration of a gold preparation. Fifteen were cured, three stopped treatment and three were uninfluenced. The gold salts were given in gradually increasing doses. The congestive types were the most amenable to treatment. Dangerous reactions were not seen.

Society Transactions

BROOKLYN DERMATOLOGICAL SOCIETY

E. ALMORE GAUVAIN, M.D., *Secretary*

Regular Meeting, Dec. 19, 1927

LOUIS CHARGIN, M.D., *Presiding*

ACROMA CUTIS POSTPARASITARIA. Presented by DR. THRONE.

J. K., a boy, aged 15, had had a brownish, scaly, rash on the trunk, shoulders and arms for some time, which had been diagnosed as tinea versicolor. During the past summer, while in camp, he had been exposed a great deal to sunlight, and he said that following this exposure depigmented spots had developed. When first seen, one month before presentation, he showed small, depigmented areas, resembling leukoderma. There was still some scaling on a few brown areas. The scales from one of these lesions showed *Microsporon furfur*. The depigmented spots were regaining their pigment and were not scaly.

DISCUSSION

DR. ABRAMOWITZ: I saw a patient of Dr. MacKee's with similar lesions about two years ago. He found *Microsporon furfur* in the white spots. Dr. MacKee explained the anomalous appearance of the active lesions to the filtering of the radiation causing the normal skin to become tanned and the scaly areas to turn white.

DR. CHARGIN: I believe that Ehrmann first called attention to this condition. These cases are not so rare if one is on the lookout for them. I saw this condition in a patient who came to us for some other reason a few weeks ago; this condition was discovered in the general examination. Our case differed from the one shown in that there was considerable scaling of the white areas.

DR. THRONE: As Dr. Chargin states, Ehrmann described the condition in 1908. Kistiakovsky of Kiev has given a brief review of cases reported by other observers (ARCH. DERM. & SYPH. **15**:685 [June] 1927). He thinks that the causative organism contains a yellowish pigment which strongly refracts light.

LEUKODERMA (ARSENICAL). Presented by DR. THRONE.

Shirley W., aged 5½, originally presented leukodermic areas on the back of the neck, upper part of the back, sides of the neck and on the flexor surface of the right arm of one year's duration. At the edges of the depigmented areas

Results of Urinalysis

Date	Specific Gravity	Total Solids	Arsenic Mgs. per 100 Cc. of Dried Specimen
11/ 2/26	1.033	4.57	0.056
11/12/26	1.028	4.38	0.191
11/19/26	1.022	4.16	0.142

there was a red, slightly scaly border, which showed moderate infiltration. There was some resemblance to tinea circinata. The scales, however, were negative for fungi. On some of the depigmented spots, there was a fine telangiectasia. This case was included in the paper on "Arsenic Findings in Dermatological Condi-

tions" (*New York State J. Med.* **27**:757 [July] 1927). At the time the paper was written, May, 1927, treatment had had no effect on the depigmented areas. This was stated in the paper. Since then, pigment had appeared in all of the leukodermic spots, and some had almost entirely recovered their normal color. The inflammatory areola had practically disappeared. Treatment consisted of intravenous injections of sodium thiosulphate.

DISCUSSION

DR. ABRAMOWITZ: No one can predict just what is going to happen with patients with depigmentation of the skin. The skin may return to normal of its own accord. I have seen improvement follow the administration of calcium chlorate by mouth. I have also seen some good results, although only temporary, after several applications of the ultraviolet rays. I have never seen an inflammatory areola around a depigmented patch, but I doubt whether arsenic retention has anything to do with it. It would be interesting to have a microscopic report of a section taken from the inflammatory zone of the leukoderma.

DR. CHARGIN: This is an unusual case; especially interesting is the fact that pigment is being deposited in the leukodermic areas.

DR. THRONE: In the area surrounding a patch of vitiligo there is an increase of pigment. Melanin contains sulphur; arsenic has an affinity for sulphur, and if present in the body fluids would be deposited in such an area. Arsenic is a direct vessel poison. I think these facts account for the symptoms this child showed. I have had no experience in treating patients who have vitiligo with calcium. With the exception of this case, I have never seen the return of pigment in such a condition.

LICHENIFICATION (UNIVERSAL). Presented by DR. ABRAMOWITZ and DR. ALTMAN.

This patient, Mr. H. E., was first presented "for diagnosis," by Dr. Altman at the Brooklyn Dermatological Society, Oct. 20, 1924 (*Long Island M. J.* **19**:18 [Jan.] 1925). Pityriasis rubra pilaris (Devergie) lichenification and leukemia cutis were suggested as a diagnosis. He was again presented as having a case of pityriasis rubra pilaris by Dr. Levin before the Manhattan Dermatological Society, Dec. 9, 1925 (ARCH. DERMAT & SYPH. **12**:123 [July] 1925). At that time Dr. Wise disagreed with the diagnosis of pityriasis rubra pilaris and stated that he believed the condition to be one of universal lichenification, that the patient did not show any of the characteristic signs of Devergie's disease at the time of presentation and that the microscopic report cited by Dr. Ochs, who had had this man under his care two years previously, was of no help, as the observations of pityriasis rubra pilaris were not sufficiently characteristic under the microscope. Several Wassermann tests were negative, and the chemical studies of the blood as well as a differential blood count were practically normal at the time.

The patient presented no evidence of pityriasis rubra pilaris; a universal lichenification of the skin was all that could be seen. Some new papular lesions were recently excised, and Dr. Satenstein reported that the epidermis showed signs of a chronic eczema with an extensive plasma cell infiltration in the cutis. He thought, therefore, that we were not dealing with an ordinary inflammatory process. The patient had been started on ascending doses of sodium arsenate by subcutaneous injections and unfiltered fractional doses of the roentgen ray.

DR. SKEER: I think I would diagnose this as lichenification. The question is, is it primary or secondary, and if a secondary condition, what was the primary eruption?

The fact that plasma cell infiltration is demonstrated does not necessarily suggest the skin condition, as plasma cells may be present in any chronic eruption.

The man's history goes back to infancy. He reports that the first eruption occurred when he was only 3 years of age. It was probably an infantile eczema with recurrent attacks followed by lichenification.

DR. THRONE: As has been pointed out, the eruption was first noticed on this patient's face when he was an infant. This, to me, is extremely important. While it may be possible for pityriasis to begin at such an early age, I have never seen it in one so young. The cardinal symptoms of that condition, a so-called seborrhea sicca of the scalp, hyperkeratosis of the palms, the nutmeg papules on the extensor surfaces of the fingers and the thick, dry, scaly condition on the extensor surface of the forearms are all lacking. There are also no symptoms of pityriasis rubra of Hebra present. The presence of mast cells in a chronic inflammatory exudate does not mean much. In my opinion, the case is one of chronic eczema with lichenification.

I am afraid of arsenical treatment in such cases, although it seems to have been the standard treatment in such conditions. It can be the cause of the condition in some cases. We have had several such cases at the Skin and Cancer Hospital. Some of them responded to treatment with sodium thiosulphate, but in others in whom the condition predominated in the vagus portion of the vegetative nervous system, this treatment was not effective. In this type of case, calcium is indicated. We use a calcium chloride urea compound.

In summing up the history of this case, we find a condition which began on the face in infancy and which has spread and at present is practically universal. The skin is infiltrated and edematous, and there are periods of exudation with crusting and fissuring, and pruritus. These symptoms to me mean eczema.

DR. WALZER: I can now retract my first diagnosis of leukemia cutis, since nothing of any importance was found in the blood all this time. I am inclined to consider this as a chronic lichenoid dermatitis caused by an unknown toxin. The prognosis of the condition, however, is bad. Mycosis fungoides may be the ultimate result; I have seen a few such cases that eventually ended in this manner.

DR. ALTMAN: This man had pneumonia, but I do not think it had anything to do with the skin disease. I have seen him several times during the past two years, and have observed him for the past eight years. His condition has been much worse than it is at present. There seems to be no particular cause for these exacerbations unless possibly the fact that at times he drinks alcoholic stimulants. He says that at such times he gets much worse.

DR. ABRAMOWITZ: I see no connection between the attack of pneumonia the patient had a few years ago and the condition of the skin, unless one considers the possibility of a tuberculous lesion. In that case, one would have to consider pityriasis rubra of Hebra, which is classified by some as a tuberculid.

In spite of all that has been said and done in this case, the patient does not appear ever to have had the benefit of any real systematic treatment. He has had external treatment which, of course, is not sufficient. Arsenic has always been an important drug in treatment of the skin; I believe it still is, and, when properly used, gives good results.

Regular Meeting, Jan. 16, 1928

LOUIS CHARGIN, M.D., *President, in the Chair*

ERYTHEMA AB IGNE. Presented by DR. WALZER.

B. S., a girl, aged 18, a bookkeeper, who had always been healthy, presented lesions on both legs of about six weeks' duration. She said she had been in the habit of sitting at a desk with her legs close to a gas heater. About four weeks previous to presentation, she noted that her left leg had become discolored and, suspecting the heater as the cause, she changed her position so that the outer part of the right leg was exposed to the heater.

The lesions were on the inner side of the left leg and outer side of the right leg, but were more marked on the left leg. The eruption consisted of large festoon shaped brownish patches which did not disappear on pressure. They were not elevated.

DISCUSSION

DR. CHARGIN: This seems to be a classic example of the condition described as erythema ab igne. Apparently there is a certain type of person whose blood vessels and tissues react to direct heat with erythema and pigmentation. The condition is by no means rare.

SCLERODERMA. Presented by DR. WALZER.

J. G., a barber, aged 43, had had pneumonia four years previous to presentation. The present trouble began about twenty months before presentation with itching of one arm and one leg, followed by redness, and more slowly by hard induration.

The interesting feature was that only the left side of the body was affected. The left arm, forearm, anterior part of the left axilla, the left part of the abdomen and the left thigh and leg were affected. The left upper and lower extremities were considerably smaller in diameter than the right. The lesions consisted of definite scleroderma in lines and patches. The left leg and foot showed the greatest involvement.

DISCUSSION

DR. THRONE: I have seen twelve or fifteen patients with this condition. In all of them arsenic was found in pathologic amounts, and all responded to therapy with sodium thiosulphate. Of course, it is not possible to restore the skin to normal, but in a case such as Dr. Walzer has shown, in which there is a definite tendency to extension of the diseased areas, the administration of sodium thiosulphate will stop the extension of these areas and if it is continued, the sclerodermatous lesions will become softer and less leathery. In these cases, because of pressure of the hardened and contracted skin and interference with the circulation, extensive destruction is caused at times. The members of this society are probably familiar with the case of extensive scleroderma reported a few years ago by Dr. Charles Mallory Williams. This patient had lost three toes on one foot and the legs showed widespread ulceration. Under the administration of sodium thiosulphate, these ulcers have all healed except those around the left ankle. The general condition of the patient is also much improved. The urine showed a large amount of arsenic.

DR. SKEER: A patient at the Jewish Hospital, whose scleroderma was so extensive that he could not move his fingers, markedly improved under the administration of sodium thiosulphate intravenously and by mouth.

DR. WALZER: The most interesting feature of this case is the involvement of one side of the body only. This would fit in with the neurogenic theory of the etiology of scleroderma.

As to Dr. Throne's comments, cases of scleroderma have been reported in which almost every method of treatment has been applied. Fowler's solution has been extensively used, with good results in many cases. The evidence as to the arsenical cause of scleroderma will have to be corroborated before Dr. Throne's comments can be accepted.

SYMMETRIC HYDRARTHROSIS (CLUTTON'S JOINTS). Presented by DR. SKEER.

E. B., a girl, aged 10, born in the United States, was first seen in the orthopedic clinic with a history of injury to her left knee in August, 1927. The symptoms were swelling, fluid in the joint, floating patella and no pain.

A week later, the right knee showed the same symptoms and the diagnosis was multiple synovitis. The Wassermann reaction was 4 plus. A roentgen-ray examination of the knees failed to show any definite change. The tonsils were diseased.

The patient received ten injections of potassium bismuth tartrate from Sept. 30 to Nov. 12, 1927, without definite improvement. From Nov. 26 to Jan. 7, 1928, she received four injections of neoarsphenamine, with the following results:

	Nov. 19,1927	Jan. 14, 1928
	Inches	Inches
Circumference of left patella.....	11½	11
Circumference of above left patella.....	10¾	10¼
Circumference of right patella.....	11⅜	10¼
Circumference of above right patella.....	11	10½

DISCUSSION

DR. SKEER: Clutton first described this condition as hydropsis of the knee joints. It was first called Clutton's disease, and he thought it was comparatively rare. It is now known to be not uncommon. In his book, Stokes said that 3 per cent of the patients are congenitally syphilitic.

XANTHOMA TUBEROSUM MULTIPLEX AND ARSENICAL HEPATITIS. Presented by DR. SKEER.

M. P., a man, aged 23, born in the United States, was from the service of Dr. Abramowitz, at the Israel Zion Hospital. For one year he had had numerous grouped papules and nodules varying in size from that of a pinhead to that of a large pea, yellow and yellowish red, glistening and firm to the touch, which were located on the extensor surfaces of both elbows and on the buttocks.

Biopsy showed the condition to be xanthoma tuberosum multiplex. Examination of the blood showed: urea nitrogen, 16; creatinine, 1.5 and dextrose, 140. The Wassermann reaction was negative. The van de Bergh test for bilirubin showed: direct, 0.5 units; indirect, 20 units. The patient gave a history of having had a chancre five months before presentation, for which he received twelve injections of mercury and five injections of neoarsphenamine. The results of several Wassermann tests taken since then were unknown to the patient. The chancre disappeared a few days after the last injection of arsphenamine. During the treatment, the patient had chills and fever and vomited. At this time he was in a hospital in Toledo for two weeks. Several days before his discharge from the hospital he noticed the jaundice which had grown progressively worse and had been accompanied by pruritus and a loss of 40 pounds (18.1 Kg.).

DISCUSSION

DR. BERKOWITZ: The xanthoma is typical. I do not think that the question of whether it is due to arsenic, to disease of the liver or to syphilis can be settled here.

DR. BEST: I believe that the patient has arsenical hepatitis. He was fortunate that he did not have acute yellow atrophy. I gave arsphenamine (first injection) to a young girl at King's County Hospital. Five days later she started vomiting and became jaundiced, and in about three days she died. Autopsy showed acute yellow atrophy of the liver.

DR. CHARGIN: Jaundice as observed in the syphilitic patients may be due to the disease or to treatment. The jaundice caused by the disease is usually observed early in syphilis, though occasionally as a late manifestation. The first is designated as icterus praecox, and may occur before the secondary eruption appears, during the secondary period or after the rash has disappeared. This type of jaundice has nothing to do with treatment. The mechanism of production is not clear, but it is explained on the basis of pressure due to enlarged glands or on a toxic basis. In this type of jaundice, syphilitic therapy is indicated. Jaundice may follow treatment with the arsenicals, and in a given case it may be difficult to determine whether the jaundice is due to the treatment or to the disease.

That jaundice can be produced by arsenicals is now fairly well established. There are a number of cases on record of jaundice produced by arsenic in nonsyphilitic persons. One interesting case is that of a physician who believed himself infected with syphilis through the handling of a patient. He received a course of injections of arsphenamine and developed jaundice. It later transpired that neither the physician nor the patient, the supposed source of the infection, had syphilis. The importance of this question becomes clear with the establishment that arsenic, as well as syphilis, can produce jaundice, but in many cases it is not possible to differentiate the two, obviously an important point, for the therapy, of course, is different. A case in point is that of a young woman with secondary syphilis who received injections of arsphenamine and a bismuth compound. After the seventh injection of arsphenamine, she developed jaundice, which terminated fatally with all the signs of acute yellow atrophy of the liver. It was impossible to determine definitely whether the yellow atrophy was due to the syphilis or caused by the arsenic.

DR. THRONE: An interesting symptom here is the high blood sugar. Of course persons with xanthoma show hyperglycemia, but some have been reported with a normal blood sugar. I do not believe in giving arsphenamine and mercury at the same time. This seems to increase the possibility of further damage to an already damaged liver. The liver is practically always damaged in syphilis. The blood chemistry will show when such an injury may occur. Whenever a high sugar and a low chloride are found in the blood, it means the retention of a heavy metal and these symptoms are indications for a discontinuance of arsphenamine or mercury and for the administration of sodium thiosulphate.

As for hepatitis, of course it can occur irrespective of syphilis. I had a case following the administration of silver arsphenamine in a patient who had a tuberculid. The condition responded to injections of sodium thiosulphate.

When referring to a death from acute yellow atrophy of the liver following six or seven injections of arsphenamine, Dr. Chargin said that it seems to him that at the present time, there is no method to enable one to determine whether it is due to the syphilis or to arsenic. The blood chemistry will give positive information, for a high sugar and a low chloride are always found in arsenical retention.

DR. WALZER: The xanthoma is typical. The jaundice is important. Is it due to the syphilis or to the treatment? If it is due to the syphilis, the patient needs more treatment; if it is due to the treatment, one must either stop or change the method of treatment. Occurring as it did, in this case five months after treatment and after five or six injections of arsphenamine, it is in all probability due to the arsenic rather than to the syphilis. If it had followed the first injection, there would be the possibility that there was a Herxheimer reaction in the liver. However, I suggest that arsenic be discontinued, in fact, that all treatment be stopped. If, however, treatment is continued, I would suggest the administration of a bismuth compound.

DR. BERKOWITZ: I cannot understand why an acute jaundice due to syphilis should occur at this stage of the treatment. I think that the jaundice in this case is due to arsenic.

SARCOID (DARIER-ROUSSY). Presented by DR. CHARGIN.

A married woman, a housewife, aged 37, had had the usual illnesses of childhood and typhoid fever. Since she had grown up, her health had been good except for trouble with the nasal sinuses. She had also suffered from laryngitis for several years. Clinically, at least, this was not tuberculous in nature.

The disease of the skin appeared eight years previous to presentation. The lesions were first noted on the arms. They began as small red spots, which had grown rapidly and had persisted. Their distribution was on the upper outer arm, where the greatest number occurred. A few scattered lesions were found on the forearms, over the right knee and one lesion on the right cheek. The eruption

consisted of nodules, some of which were isolated, while others were grouped into irregular patches. They were firm to the touch and were deeply situated and elevated above the level of the skin. The greatest infiltration was in the center of the lesion, the tumor mass gradually shading off toward the normal skin. The lesions were red or bluish red. The redness could be readily pressed out, the color returning in about six seconds. Some of the lesions showed telangiectasia. They were painless except on firm pressure. The Wassermann test was negative.

DISCUSSION

DR. ALTMAN: I presented a case of sarcoid about a year ago. This woman refused to take injections of any kind and was treated with ultraviolet irradiation for a few months, with improvement.

DR. CHARGIN: This patient has been under my care for several weeks, and is now receiving injections of arsphenamine. The results have been fairly good. The lesion on the cheek, which was well infiltrated when treatment was started, has involuted about 20 per cent. If the condition fails to respond to further treatment with arsphenamine, I propose to give the patient injections of the gold preparations.

LICHEN PLANUS LIMITED TO THE TONGUE (?). Presented by DR. CHARGIN.

J. H., a man, aged 30, had been suffering for several years from an eruption which was limited to the margins of the tongue. The eruption was bluish-white and affected the border of the tongue. Individual papules could not be made out, and marked inflammatory reaction in the tissue of the tongue was not found. The mucous membrane of the cheeks was normal. Evidence of lichen planus was not found anywhere on the skin. The Wassermann test was negative. A blood cell count was normal. The patient complained of burning pain.

DISCUSSION

DR. THRONE: I cannot make a diagnosis. The eruption is lichenoid.

DR. BEST: I do not see anything that suggests lichen planus. The papillae are enlarged over the entire tongue. The patient gave a history of gastric disturbance and occasionally has aphthous ulcers. I think that the condition is simply a glossitis secondary to a chronic gastric disturbance.

DR. BERKOWITZ: Limitation to the tongue makes it difficult to make a diagnosis.

DR. CHARGIN: I have considered the various possible diagnoses in this case, and regard lichen planus as most likely. The lesions are not leukoplakia, which is firmer to the touch, whiter, often irregular in outline, and frequently show scars. Moreover, the location is not that usually observed in leukoplakia. Furthermore, in my opinion, nearly all cases of leukoplakia are due to syphilis, and I think syphilis can be ruled out in this case. The lesions are soft, definitely bluish, without evidence of definite papules and ring formation, but are definitely mosaic in outline. In a review of 100 cases of lichen planus which recently appeared in the literature, it was shown that in 20 per cent of the cases, the lichen planus was limited to the mucous membrane.

The lesions on the tongue are not those observed in diabetes, nephritis or pernicious anemia, and I regard lichen planus as the most likely diagnosis.

ALLERGIC DERMATITIS. Presented by DR. CHARGIN.

Mrs. R. K., aged 27, a housewife, had been in good health until 2½ years before presentation, when she had noted an eruption which first appeared on the hands, then on the neck, and finally on the face. Since that time, she had practically never been free from the eruption, although the intensity varied from time to time. The face was red, somewhat scaly and occasionally showed some

moisture. She had been under the treatment of several dermatologists, and while the eruption occasionally receded to some extent, she was never free from it, subjective symptoms of itching and burning being constantly present. Skin protein tests showed a strong reaction to wheat. Corn and rice also gave a moderate reaction. There was a moderate reaction to stock dust and a doubtful reaction to chicken meat and goose feathers. Examination of the urine gave negative results. A blood count was within the normal limit. The blood chemistry showed a slight increase in uric acid.

With the knowledge that there was a marked reaction to wheat, this article of diet was entirely excluded, with the result that within a short space of time, there was almost a complete disappearance of the eruption.

DISCUSSION

DR. GAUVAIN: Why does this allergic reaction develop later in life? I had an experience with a young boy, who developed a lesion in the pubic region which looked like poison ivy. This eruption developed about three weeks after the boy had returned from a summer camp. It finally subsided, but it recurred two or three months later without his having been exposed to ivy. Going into the history of the case to determine when the eruption developed, I thought of the possibility of an allergic reaction, though I could not see why the pubic region alone should be involved. I found that he was sensitive to onions and learned that prior to the first attack he had eaten a great quantity of onions. The second eruption also appeared after onions were eaten. After onions were removed from the diet, the condition did not recur.

DR. WALZER: The question of wheat as the cause of an eruption in an adult is rare, though cases have been reported. It is more likely to occur in children.

As to the value of skin tests in hypersensitiveness of the skin at the present time, a condition of the skin that manifests itself by edema is the only type that can be diagnosed in this way. The test itself is a wheal — hence, the wheal or an edematous eruption will give reactions.

Heredity is the most important single factor that is known at present in the etiology of hypersensitiveness; this heredity includes the type of reaction as well as the time of onset of the hypersensitive symptom.

DR. CHARGIN: This appears to be a case of allergic phenomenon — of a sensitization to wheat. This patient has not been free of eruption in two and one-half years, and during this period she was under the care of competent dermatologists. Apparently wheat is the offending agent, since the dermatitis disappeared on removal of this article from the diet.

ARSENICAL DERMATITIS (?). Presented by DR. CHARGIN.

H. L., an unmarried woman, aged 25, a telephone operator, in June, 1927, had a maculopapular syphilitic eruption on the entire body. The Wassermann test was 4 plus. During June, July and early August, she received eight injections of arsphenamine and eleven injections of a bismuth compound. The Wassermann test was then negative. The second course of treatment was started in September and consisted of six injections of arsphenamine and eight injections of a bismuth compound. While under treatment she developed an eruption involving the mucous membrane of the throat, which was regarded as probably due to the bismuth compound. Treatment was stopped. Early in October, an eruption appeared which was at first limited to the upper eyelids but soon spread to the cheeks, the areas around the mouth and neck and with scattered patches distributed over the body. On the eyelids, the eruption was eczematous in nature, while on the rest of the body it had the appearance of a dry seborrhea. There was marked itching, especially around the eyes. In spite of local treatment, the eruption persisted, being practically unchanged since its first appearance. The mucous membrane of the

tongue and cheeks showed scattered patches of inflammatory reaction that were difficult to classify. The patient denied taking phenolphthalein, though the eruption bore some resemblance to that caused by this drug.

DISCUSSION

DR. BEST: In seborrheic dermatitis, slight infiltration of the patches may be present. There is a type of generalized seborrheic dermatitis with a tendency toward circinate and sharply defined lesions. I have certainly seen this type in which the lesions have spread to the nonseborrheic areas of the body. I think that it is a case of seborrheic dermatitis.

DR. THRONE: I have never seen a condition like this definitely associated with the administration of arsenic, mercury or bismuth compounds. I have seen a great many conditions like that in the case reported, and the best results seem to be obtained with wet compresses of a 2 per cent solution of boric acid in camphor water.

DR. CHARGIN: Frankly, I do not know the diagnosis of this case. I do not think that the condition is seborrheic dermatitis. Seborrhea is typically found on the scalp, face, midchest, midback and rarely elsewhere. The lesions in this case are scattered over the body, and are least marked in the seborrheic areas. I believed that I have ruled out toilet water, phenolphthalein, powders and other likely offending agents.

NEW YORK ACADEMY OF MEDICINE, SECTION OF DERMATOLOGY AND SYPHILIS

J. J. ELLER, M.D., *Secretary*

Regular Meeting, Jan. 3, 1928

E. R. MALONEY, M.D., *Chairman*

CONGENITAL SYPHILIS (FOUR CASES). Presented by DR. PAROUNAGIAN.

CASE 1.—J. S., aged 34, was presented at the clinic on March 23, 1922. There was no history of acquired syphilis. There was a perforation of the soft palate which had existed for four weeks. The Wassermann reaction was 4 plus. In addition to the perforation of the soft palate, he had a high vault, irregular anterior hair line, protruding forehead and tubercles of Carabelli.

He had three sons whose ages were 13, 12 and 8, respectively. The youngest had impaired vision. All of them had negative Wassermann reactions and exhibited tubercles of Carabelli, high arch and irregular anterior hair lines.

CASE 2.—D. H., an Armenian, aged 40, said that he not had any venereal disease. He also said that the deformity of his nose had occurred twenty-six years previous to presentation. He had been married, and his wife had given birth to a child who died two weeks later. His Wassermann reaction was negative. There was a saddle nose; the uvula was absent; the septum was completely destroyed, and the palatal arch was high.

CASE 3.—W. C., a negress, aged 17, single, was admitted to the clinic on June 1, 1927. Her history did not reveal any evidence of venereal disease. The Wassermann test was 4 plus on two occasions. Her chief complaint was that she had not been able to see out of one eye for a month, and the vision in the other eye was not good. On examination, the following stigmas were noted; Hutchinson's teeth, high vault, irregular and imperfect anterior hair line, front teeth widely separated and peg shaped. Vision had improved under antisyphilitic therapy.

CASE 4.—Miss G. G., aged 18, came to the clinic on June 1, 1927. Her Wassermann test was 4 plus. Examination revealed saddle nose, high palatal arch, perforation of hard palate, absence of uvula and irregular anterior hair line.

DISCUSSION

DR. TRAUB: At the meeting in Philadelphia, Dr. Stokes said that the tubercle of Carabelli was present in too many normal persons to have much bearing on the diagnosis of congenital syphilis.

DR. HIGHMAN: An interesting question in the mechanism of heredity is presented in these cases — not the heredity of syphilis, for there is no such thing — but in the case of the father and the three children. Whether he is syphilitic or not and whether the syphilis is congenital or not is a question to be considered; yet he has tubercles of Carabelli and his sons have them also; and since Dr. Parounagian sees no reason for regarding the children as syphilitic, he has demonstrated that nonsyphilitic persons have these tubercles. This vitiates the diagnostic value of the tubercle of Carabelli as an indication of congenital syphilis.

DR. CANNON: I do not think that Dr. Parounagian has sufficient evidence on which to conclude a diagnosis for congenital syphilis in any of the patients under discussion. It is generally considered that Carabelli's tubercles, high palatal arch, irregular hair line and saddle nose are only suggestive signs of congenital syphilis. I find Carabelli's tubercles just as frequently in persons who are nonsyphilitic as in those suffering with this disease. The saddle nose is often seen in acquired syphilis. I believe it is generally considered by most syphilologists that only Hutchinson teeth, moon teeth and mulberry molars and interstitial keratitis are pathognomonic of congenital syphilis. As a matter of fact, I should say that no one of the patients presented either a high arch or an irregular hair line.

DR. ELLER: I have been much interested in the relationship of the tubercle of Carabelli to congenital syphilis. After making a perusal of the literature, I found that the consensus of opinion was that the tubercle of Carabelli was not a stigma of congenital syphilis. However, Dr. Parounagian has presented over thirty patients showing the tubercle of Carabelli on the molars, and all of these patients were proved to be cases of congenital syphilis. My own opinion is that Carabellis tubercles are due to some nutritional disturbance in infancy or early youth and that it may be found in normal persons.

DR. PAROUNAGIAN: If none of the cases presented at this meeting showed the signs of congenital syphilis, congenital syphilis does not exist. It is my opinion that all these patients have congenital syphilis, including the two boys mentioned by Dr. Highman. I have a record of a large number of patients, who have exhibited stigmas such as high palatal arch, irregular anterior hair line, tubercle of Carabelli, etc., in whom it has been possible to prove congenital syphilis. As a result of my clinical observations in such cases, it is my opinion that these stigmas are indicative of congenital syphilis.

CONGENITAL SYPHILIS (CHARCOT JOINT). Presented by DR. PAROUNAGIAN.

L. S., aged 28, was first seen July 1, 1926; his chief complaint was a diseased condition of the hip joint. He said that he had not had venereal disease. His Wassermann reaction was 4 plus. He manifested a number of signs of congenital syphilis, i. e., irregular anterior hair line, high palatal arch, tubercle of Carabelli, etc. The diagnosis of Charcot joint was confirmed by the roentgen-ray examination. He had received a considerable amount of treatment without material improvement of the condition of the joint.

ARSPHENAMINE DERMATITIS (?). Presented by DR. PAROUNAGIAN.

L. E., a widow, aged 34, came to the Bellevue Hospital clinic on Nov. 30, 1927, suffering with neurosyphilis. Her Wassermann reaction was 4 plus. She had received six injections of neoarsphenamine, one of mercury and twelve of

bismuth from her private physician during October and November. Since December 2, she had received four injections of mercuric salicylate and four of silver arsphenamine. On her last visit, December 30, she complained of a pruritic eruption, which consisted of a well developed generalized macular dermatitis. She thought the rash appeared after the first injection given at the clinic.

DISCUSSION

DR. ROSEN: If I did not know that the patient had received arsphenamine intravenously, it would not occur to me to consider the possibility of an arsenical dermatitis. The superficial scaling and erythematous ovoid lesions, with the appearance of central wrinkling, give a characteristic picture of pityriasis rosea. The distribution of the eruption on the trunk with only slight involvement of the extremities also speaks in favor of pityriasis rosea.

DR. TRAUB: I agree with the diagnosis of pityriasis rosea. The lesions were limited to the torso, and the ones on the upper portion were characteristic — oval patches with the long axis lying parallel to the lines of cleavage in the skin, and the crinkles in the cigaret paper-like scales at right angles to this long axis.

DR. LEVIN: Clinically, the skin presents the appearance of an atypical pityriasis rosea. Another condition which is suggested is that of a superficial type of psoriasis. The characteristic signs of these two conditions are absent, however. Scattered over the skin, especially on the abdomen, are linear and irregular lesions which are mildly inflammatory and covered with thick, whitish scales, though these, when removed, do not reveal the appearance seen in psoriasis. I have observed this type of lesion in other conditions — for instance, following the use of gold in lupus erythematosus. It may also be seen subsequent to bismuth therapy. I believe that in this case it is the result of injections of arsphenamine.

DR. PAROUNAGIAN: I am in doubt about the diagnosis, but I think that it is a case of arsenical dermatitis. I hesitate to accept the diagnosis of pityriasis rosea, and I do not dare to administer arsphenamine.

DERMATITIS HEMOSTATICA. Presented by DR. THORNLEY.

Dora K., aged 55, born in Russia, for the past two years had suffered from a generalized eruption, characterized as follows: On the legs were pinhead-sized brownish purpuric macules, which were closely aggregated, giving a cayenne-pepper appearance; on the right side of the left knee was a palm-sized brownish patch of similar nature; on other parts of the body and on the arms were a few small superficial atrophic patches; on the back were large scaly patches, irregularly outlined. There were no subjective symptoms.

DISCUSSION

DR. BLOOM: The pigmented lesions on the leg are deposits of hemosiderin from previous hemorrhages into the skin, probably following dermatitis hemostatica, but of more interest are two kinds of lesions which the patient presents on the rest of the body — the scaly lesions on the back and the lesions on the posterior and inner aspect of both arms, consisting of small atrophic spots and telangiectasia. I suggest that these lesions represent senile changes in the skin.

DR. LEVIN: The patient presents a generalized and scaly skin; there is distinct atrophy with fine wrinkling; she has lost a great deal of weight. It is evident that she does not wash sufficiently, thus allowing the dirt and scales to accumulate on the surface. The atrophy, I believe, followed the loss of fat.

ACNITIS (?). Presented by DR. HOPKINS.

W. M., aged 23, a craftsman, born in the United States, was first seen in the Vanderbilt Clinic on Dec. 19, 1927, with an eruption scattered rather diffusely

over the face but most marked on the eyelids and skin around the eyebrows. He stated that the lesions started on the eyelids about three weeks prior to coming to the clinic, and had spread to the mouth and scalp. He had never had any other skin eruption.

The most definite changes were apparent on the lower eyelids and consisted of numerous pinkish, round, firm papules the size of a pin head, surrounded by slight erythema. There were similar but much smaller lesions on the skin of the inner portions of the eyebrows, which were slightly mingled with blackheads. There was also a mild seborrheic dermatitis of the scalp and a few papular lesions along the frontal hair line. The nasolabial region on both sides showed an erythematous, yellowish, slightly scaly eruption, within which were numerous small papules not as distinct as those of the eyelids.

The biopsy report revealed epithelioid cells, lymphocytes and occasional polymorphonuclear and giant cells, but no typical tubercle formation. The diagnosis, the presenter said, was either acnitis or acne vulgaris.

DISCUSSION

DR. FRASER. One of the best articles ever written on acnitis was by our chairman, Dr. Maloney. The histologic picture he found was that of tuberculosis of the follicles. There was definite tubercle formation with caseous necrosis. I do not think this case is acnitis, nor do I believe that it is acne vulgaris.

DR. CHARGIN: I hesitate to offer a definite diagnosis. If it belongs to the tuberculous group seen on the face, I think it fits into the picture of disseminate follicular lupus. The absence of scars, also, does not favor the diagnosis of acnitis. I do not see how the condition in this case would fit into any type of acne — the comedones, the pustules and the usual distribution are lacking.

DR. HIGHMAN: This is one of the most interesting cases that has been presented in a long time. The distribution in the vicinity of the eyes and around the mouth in a man whose skin is singularly free from comedones and is not seborrheal would be sufficient to exclude the diagnosis of acne or seborrhea. The lesions have the structure of tuberculosis; probably this case belongs in the tuberculosis group. Three designations suggest themselves, and I cannot see an important distinction among the three: telangiectatic acne, miliary lupus and acne agminata. I think that telangiectatic acne is an obsolete term. Intellectually, the most satisfying conception of the case would be to construe it as miliary disseminated lupus. In the artificial light it is difficult to make such a diagnosis, but I have no doubt that this patient will prove to have that type of miliary lupus of the skin. Miliary lupoid is a crawl — the suffix "oid" always is. This is not an "oid" but an "us." The appearance of the man as well as that of the eruption leaves little doubt of the patient's having tuberculosis of the skin.

DR. LEVIN: The patient presents groups of dark red, conical, follicular papules varying in size from that of a pinpoint to that of a pinhead, with central plugs due to hyperkeratosis. When the hand is passed over the skin, one experiences the same rough sensation as when touching a nutmeg grater. The lesions are distinctly grouped in circles. I do not think this is a case of miliary lupus, because the lesions in that condition are softer and do not show the follicular plugs. Neither do I regard it as acnitis, because the lesions in this condition tend to be less confined to the forehead and are spread over the cheek; they are larger and show a tendency to central softening, necrosis and pustulation. My diagnosis is acneform dermatitis or eczema, resulting from the application of petrolatum to the skin. I wish to call attention to the fact that in these cases giant cells have been described, and the picture may resemble tuberculosis histologically.

DR. HIGHMAN: In Vienna, I saw children with cases of conjunctivitis, with lesions of this sort near the eyelids. The condition was called scrofulous conjunctivitis and was tuberculous. As to Dr. Levin's suggestion of a petroleum

eczema, the man has not been exposed to this product; he is a draughtsman, and I have never heard of a draughtsman prolongedly exposed to petroleum, nor of giant cells in an eczematous lesion.

DR. ABRAMOWITZ: Aside from the histologic picture, the eruption clinically is of the acneform type, and in view of the fact that the man received medication for over six weeks, although the eruption appeared some time afterward, I would like to make the suggestion that his blood serum be examined for iodine or bromine to exclude a rash produced by drugs.

DR. WOLF: If the condition is tuberculosis of the skin, it fits in well with lichen scrofulosorum. There are lichenoid papular lesions, which are scaly, more or less grouped, and in locations not often seen in lichen scrofulosorum, but clinically and with the microscopic observations I think one may consider the diagnosis of lichen scrofulosorum.

DR. FRASER: After looking at the slide, I am convinced that it is not an acne lesion; there are no comedones in the follicles. It is a granuloma of the skin with epithelioid and giant cells; there is a suggestion of tubercle formation, but I would not like to go so far as Dr. Highman and say absolutely that it is a case of tuberculosis. There is not enough histologic evidence to say that. There are granulomas of the skin that show a tuberculous architecture, but they are not necessarily tuberculous.

DR. HOPKINS: I have not much to add. To me, the slides were as interesting as the case itself. I am not sure that our histologic report was entirely adequate, but the specimen was a mere fragment. So far as I could see, the granulomatous formation was not directly in association with the hair follicles. It was not the condition one would expect in acne; in these nodules there were what appeared to be obliterated vessels, and the impression I had was that the process began about the blood vessels rather than about the hair follicles. I have been much interested in the suggestions made.

TERTIARY SYPHILIS. Presented by DR. CANNON. (From the Vanderbilt Clinic.)

J. F. M., a chauffeur, aged 28, was first seen in the Vanderbilt Clinic on Dec. 14, 1927, complaining of ulceration in the nose. The condition had been present for about five months.

The patient presented a sharply outlined deep ulceration on the upper lip associated with destruction of the cartilaginous septum of the nose and ulceration of the inner surface of the alae. Necrotic pieces of the bony septum were visible in the upper portion of the ulceration; there was an ulceration of the soft palate communicating with the nasal chambers. The Wassermann test was 4 plus.

HODGKIN'S DISEASE. Presented by DR. SPIEGEL.

R. Z., a machinist, born in Hungary, who had been in this country for twenty-one years, had complained of intense itching for seven weeks before presentation; he said that he had lost about 20 pounds (9 Kg.) and felt weak. Examination showed a dry icteric skin with numerous erythematous patches on the chest, abdomen and extensor surfaces of the arms. There were numerous scratch marks on the body and various sized urticarial wheals on the buttocks. There was a generalized adenopathy, most marked in the inguinal regions. The glands were painful on palpation. The spleen was enlarged. The Wassermann reaction was negative. The blood sugar was 156 mg. per hundred cubic centimeters. The blood count showed: red cells, 3,416,000; hemoglobin, 90 per cent; leukocytes, 82 per cent; polymorphonuclears, 74 per cent; large lymphocytes, 11 per cent; small lymphocytes, 10 per cent; transitionals, 3 per cent; basophils, 3 per cent; mononuclears, 1 per cent.

The biopsy report gave a tentative diagnosis of Hodgkin's disease.

DISCUSSION

DR. HIGHMAN: There is not much to say about a case of this sort that is definite. Perhaps that furnishes the inspiration of most dermatologic discussions. This man has a pruritic eruption that is difficult to describe; the patches are apparently infiltrated. This type of eruption could be any lymphadenosis of the skin — Hodgkin's disease or leukemia or an early stage of mycosis fungoides. Certainly the blood picture is not that of leukemia. In Hodgkin's disease regional adenopathies are usually found, more or less indicative of the condition; these are lacking in this patient. In studying such glands, if they happen to be present, the histologic diagnosis is easily reached. A few years ago Dr. Howard Fox reported a case of Hodgkin's disease that began in the skin and later became generalized; the Dorothy Reed cells were found in the skin lesion. This was unique. I do not know what can be said about this patient except what Nat Goodwin said when asked whether he was single, married, widowed, or divorced; he answered, yes.

DR. FRASER: I am inclined to agree with the diagnosis of Hodgkin's disease, but I believe that the eruption is an accompanying condition and not a true lymphogranulomatosis.

DR. TRAUB: I think the question of Hodgkin's disease will have to be settled later, but the skin lesions are typical. They have been present for only six days, appearing on an extremely raised and inflammatory base. They are grouped unilaterally, and are covered with tiny vesicles, some of which are undergoing a central necrosis. The picture presented on the right buttock is that of herpes zoster.

DR. LEVIN: The lesions presented by the patient closely resemble those seen in Hodgkin's disease and leukemia, and in other conditions of the blood where there is a lowered resistance of the skin to irritation and infection. This case brings to my mind a patient whom I saw with Dr. Goldenberg only four days ago at the medical service at Mount Sinai Hospital. The diagnosis was aleukemic leukemia, and the patient showed soft, dark red infiltrations with central necrosis, similar to those seen in this case. We did not regard it as a true leukemic condition, but rather as a manifestation of a poor condition of the skin. In the case under consideration, the lesions aside from those which are herpetic, represent, in my opinion, chronic inflammatory lesions in a patient with Hodgkin's disease, with poor resistance. The necrosis of the central portions results from pressure.

DR. SPIEGEL: I agree with Dr. Fraser's remarks. The interesting feature is that the condition dates back seven weeks; previous to that the patient was well, but since then he lost 20 pounds (9 Kg.); the glands are all enlarged, especially in the inguinal regions. I think the lesions on the skin have nothing to do with the Hodgkin element in this case. As Dr. Traub says, I think the vesicles on the left buttock are due to herpes. The man complains only of intense itching, and these lesions on the skin are due to scratching. A gland has been excised, but the pathologist has not yet reported on it. The subsequent biopsy report verified this diagnosis.

KAPOSI'S SARCOMA. Presented by DR. MCCAFFERTY.

A. L., aged 61, a compositor, born in England, had been presented at the December meeting of the Academy of Medicine with a history of having first appeared at the Vanderbilt Clinic, Nov. 29, 1927, with multiple lesions on the toes of the left foot, which had been present for about five weeks. During the month before presentation, the patient had received two roentgen-ray treatments at the clinic, with moderate improvement. A minute nodule first removed for examination showed a slight infiltration with lymphocytes and a proliferation of fibroblasts about the small lymphatics. A second specimen, consisting of half of one of the largest nodules, showed a large encapsulated tumor mass lying in the corium, separated from the epidermis by a band of relatively normal tissue. The mass was made up of spindle cells arranged in interlacing bundles, without stain-

able collagen fibers between them. There were numerous large spaces with endothelial lining, apparently dilated lymph vessels. There were few mitoses. The tumor was somewhat lobulated and the lobules were separated by a thin band of collagen. In the corium surrounding the tumor were numerous dilated vessels without stainable contents, which were probably dilated lymphatics. In one field was a small deposit of yellowish pigment granules scattered through the collagen. The epidermis was thin as if from compression of the tumor. The tumor had the characteristics of the circumscribed nodules found in Kaposi's disease. The presence of pigment and lymphangiectasis was characteristic of this disease. The new formation of blood vessels was not evident in the section examined. The observations were, however, compatible with the diagnosis of Kaposi's sarcoma.

DISCUSSION

DR. COMBS: I am inclined to agree with the diagnosis. While clinically there is not much to see now, there is nothing else that suggests itself excepting the possibility of melanosarcoma. The improvement after treatment is in favor of Kaposi's sarcoma. From the slides, although it does not agree entirely with my conception of Kaposi's sarcoma, it is a true angiofibrosarcoma. The infiltration is typical, but there are no hemorrhages. The section also shows many dilated lymph spaces, which would account for the elephantiasis of the toes. This case demonstrates the importance of combined histologic and clinical examination before a definite diagnosis can be determined.

DR. HIGHMAN: It is incumbent on me to make a remark or two about this case, for the last month I was sure that it was not Kaposi's sarcoma, and this month I am sure it is. The specimen, as the histologic report indicates, is not typical of Kaposi's sarcoma in that hemorrhages are lacking, but it is certainly angiofibrous and consequently its general appearance is suggestive of angiosarcoma. The element lacking in the requisites for Kaposi's sarcoma is the hemorrhage. The consequent lesson, however, that one learns in dermatopathology is that not every lesion selected for examination is the best one, and not all the data looked for are present in a given lesion. Certainly it is impossible to exclude the diagnosis of Kaposi's sarcoma on examining the section Dr. McCafferty presented, and I rather fancy that the slide together with the clinical observations and the ready response to roentgen-ray treatment are sufficient indications on which to base the diagnosis of Kaposi's sarcoma.

DR. FRASER: I wish to emphasize the point made by Dr. Highman of the importance of comparing the histologic and the clinical pictures in these cases. Taken together they furnish a setting fully consistent with the diagnosis of Kaposi's sarcoma.

DR. ROSTENBERG: Leaving the histologic observations aside, I felt at the last demonstration of this case that we were dealing with Kaposi's sarcoma, and I am sure of it now. I am the more encouraged to this diagnosis as the roentgen-ray therapy proved so beneficial — which is always the case in Kaposi's sarcoma.

DR. MCCAFFERTY: There is not much to add after the remarks of Dr. Highman and Dr. Fraser regarding the histology of this section. However, in reviewing the literature I read an article by Pick, from which I gathered that there are probably three histologic pictures for Kaposi's sarcoma. Each picture may be more or less distinct, but usually they merge one into the other. The first, and perhaps the most typical, form is the one in which there are dilated lymph vessels and lymph spaces — some with endothelial lining and some without — and few blood vessels, with a predominance of fibroblasts and not much hemorrhage. The second type may consist of some dilated lymph vessels but with a preponderance of dilated blood vessels and considerable hemorrhage; in addition to this there is usually an increased fibroblastic growth. The third type may present an increased number of blood and lymph vessels, all of which are markedly compressed or almost missing, owing to the extreme growth of the fibroblasts and fibrils laid down by these new-formed cells; there is little or no hemorrhage. The

case under discussion probably fits under the third classification more closely than under the others. There is no definite histologic picture of Kaposi's sarcoma, and we can more accurately arrive at a diagnosis by comparing both the histologic and the clinical pictures.

A CASE FOR DIAGNOSIS — PEMPHIGUS VULGARIS. Presented by DR. CANNON.

Miss M. S., white, aged 35, a houseworker, born in the United States, came to the Vanderbilt clinic on Dec. 30, 1927, complaining of sores in the mouth which had been present for seven weeks. For two weeks prior to the onset of the condition, the patient had had a persistent moderately severe sore throat. Seven weeks prior to presentation, she first noticed several small white ulcerations on the floor of the mouth beneath the tongue. Shortly after this, ulcerations appeared on the margin of the tongue and on the inner surface of the cheeks. Two weeks prior to coming to the clinic, the mucous membranes of the lips became ulcerated. Since the onset of the condition the patient had been receiving on the involved areas biweekly applications of iodine and silver nitrate. During the past seven weeks, she had lost 15 pounds (6.8 Kg.) in weight. There was no history of ingestion of drugs prior to the onset of the lesions.

Both lips were covered with bloody crusts and there were bullous lesions on the mucous membrane of both cheeks, especially on the left side. The tongue, which was scrotal in character, showed marked exfoliation except in the central portion which was rather coated. There were erosions on the margins and broken-down bullae on the lower surface of the tongue. There were also erosive lesions on the tonsillar pillars and uvula. On the inner surface of the right knee was an area 2 by 1½ inches (5 by 3.7 cm.) showing slight pigmentation. Around this area were several vesiculopustular lesions with inflammatory reaction of the underlying skin. The rest of the skin was perfectly clear.

DISCUSSION

DR. CHARGIN: I should be inclined to consider it a case of early pemphigus, especially because of the character of the lesions in the throat. The hemorrhagic aspect of the lesions on the tonsils and soft palate and the persistence of the eruption without improvement make me think that the condition is probably an early pemphigus.

DR. LEVIN: I wish to call attention to the importance of the Nikolsky sign in making a final diagnosis of pemphigus from other cutaneous lesions. In this patient the sign is absent. In a patient recently observed by me, there was a generalized eruption of bullae with erythematous lesions in large gyrate patches. When the patient was first seen in the Beth Israel Hospital, a diagnosis of erythema multiforme bullosum was made, but on testing the skin for the Nikolsky sign it was found to be positive, whereupon the diagnosis was changed to pemphigus. While he was in the hospital, the erythematous lesions faded and the true picture of acute pemphigus developed, with lesions in the eye, the mouth and on the skin. The patient died within six weeks. Although the Nikolsky sign may be present in other conditions also — such as epidermolysis bullosa hereditaria and erythema bullosum — such occurrences are rare. It is my opinion that we should always be inclined toward a diagnosis of pemphigus when this sign is present.

DR. SCHEER: Nikolsky's sign occurs in some diseases of the skin besides pemphigus and so is not pathognomonic of that disease. Some years ago I presented a patient at one of the Mount Sinai conferences on diseases of the skin who had a phenolphthalein rash of the fixed pigmented type and who presented the typical Nikolsky phenomenon.

DR. ABRAMOWITZ: It is sometimes difficult to distinguish between pemphigus and erythema multiforme bullosum at the outset of these diseases. I recently had a patient with probable erythema multiforme bullosum which finally turned out to be pemphigus vegetans. I think a few weeks' observation will be required

in this case before a final diagnosis can be determined. Perhaps if the patient is given large doses of salicylates with a resulting cure, pemphigus may be excluded.

DR. CANNON: Because of the location, duration and character of the lesions — limited to the mucous membrane for so long a time — we thought we were dealing with pemphigus rather than with erythema multiforme bullosum. I do not think the therapeutic test of salicylate is of more value in diagnosing erythema multiforme bullosum than in diagnosing pemphigus.

LICHEN PLANUS ATROPHICUS. Presented by DR. MCCAFFERTY. (From the Vanderbilt Clinic.)

Mrs. H. H., aged 49, born in Denmark, a houseworker, was first seen in the clinic on Dec. 27, 1927, with lesions on the back which she stated had been present for three years. The first lesion appeared on the back as a pruritic patch which gradually increased in size. Two years prior to presentation another similar lesion appeared on the right side of the neck, and three months prior to coming to the clinic a third lesion appeared on the right shoulder.

On the upper part of the back and on the right side of the neck were three irregularly outlined lesions the size of a dollar; the skin of the lesions was silvery white and appeared to be slightly atrophic. The plaques were formed by the coalescence of numerous papules the size of a lentil. The larger plaque presented areas of slight hyperkeratosis. In both axillae were dark yellow, slightly atrophic macular lesions the size of a palm. The Wassermann test was negative.

The biopsy report revealed that the histologic picture was compatible with the diagnosis of lichen planus atrophicus. There was vesicle formation, atrophy of the epithelial layer, superficial sclerosis and deeper lymphocytic infiltration.

DISCUSSION

DR. SCHEER: A differential diagnosis that must be considered is white spot disease or the end-stage of morphea; I think this can be ruled out. First, the lesions are isolated definite papules; second, the new lesions over the shoulder do not show any evidence of morphea. On the contrary, there are distinct polygonal papules of irregular outline, looking like lichen planus except for the color, and showing atrophy. I agree with the diagnosis of lichen planus atrophicus, beginning clinically as atrophic lesions.

DR. ROSTENBERG: I also would group this case under the classification of lichen atrophicus. Various names have been attributed to these cases by various authors. I think that Zumbusch's designation of lichen albus fits this case the best. In the ordinary type of lichen atrophicus, we usually have keratotic plugs in the lesion and a faintly pink margin — both of which are absent in this case.

REPORT ON CASES PREVIOUSLY PRESENTED: CASE OF PIGMENTATION ON NOSE RESEMBLING A BLACK MOLE. Presented by DR. CANNON, Dec. 6, 1927.

DR. CANNON: The man (M. M.) has not returned, but we made a Wassermann test, which was four plus.

PHILADELPHIA DERMATOLOGICAL SOCIETY

CARROLL S. WRIGHT, M.D., *Secretary*

Friday, Jan. 6, 1928

PATRICIA HART-DRANT, M.D., *Presiding*

NODULO-ULCERATIVE SYPHILID. Presented by DR. GILMAN for DR. STOKES.

G. W., a man, aged 40, married, a farmer, born in New Jersey, who lived in Pennsylvania and who had not been out of this section of the country

in his life, eighteen months before presentation first noticed "a small white pimple" in the right nasal labial fold. At the time he was spraying potatoes with bordeaux mixture (blue stone, lime and lead arsenate). He believed that he had transmitted this mixture of chemicals to the lesion on the nose, and that this was responsible for the continued spread of dermatosis since that time.

The initial nodule began on the right side of the nose. It subsequently became ulcerated and crusted, and bordering lesions began to appear on the right cheek and over the bridge of the nose. There has been a continual spread of the process since the onset; the large lesions now present on the upper lip near the angles of the mouth appeared about six weeks before the patient was presented. He did not experience any local discomfort.

Treatment during the past eighteen months had been entirely local, consisting chiefly of the application of lotions. The patient said that laboratory studies had not been made at any time. There was no history of a primary lesion or anything significant of a syphilitic or serum infection.

The patient had been married for thirteen years and had three children; his wife was in good health and had not had any miscarriages. The blood count was within normal limits; the red cells numbered 5,200,000, the white cells 8,900, and the hemoglobin content was 96 per cent. A report on the Wassermann test had not yet been returned.

DISCUSSION

DR. STOKES: We did not present this patient with the expectation of arousing unusual comment, but chiefly to show that a patient with such a case had consulted five physicians in eighteen months without its occurring to any one of them to make a Wassermann test.

SCLERODERMA (?). Presented by DR. CORSON.

L. G., aged 29, had been at the hospital but a few days and all the studies had not been completed. She presented numerous slightly infiltrated, whitish, waxy patches on the ankle and wrist.

DISCUSSION

DR. SCHAMBERG: The condition impresses me as being a beginning scleroderma. If you wish to call it morphea, I do not take exception to that. I fear that it is going to become a case of the disseminate, widespread type of scleroderma. There is a distinct binding down of the skin on the legs to the subjacent tissues, and there are diffuse whitish, anemic areas, with condensation of the skin. The fact that the eruption is present also on the upper extremity looks as if it were ultimately going to spread to other areas. It does not impress me as the type of morphea that will remain circumscribed. Since it is of short duration, I am afraid the outlook is unfavorable.

DR. STOKES: At first I was inclined to feel exactly as Dr. Schamberg does, but after looking at the patient for a moment, and especially after inspecting the wrists, I was impressed by the absence of a violaceous border and the suggestion of atrophy at the base of one of the thumbs; also the multiple polygonal lesions around the periphery of a confluent center. I thought that we might be looking at a lichen albus seu atrophicus. The absence of pigmentary changes speaks against this type of scleroderma. I do not suggest this as a diagnosis, but I think that this patient should be watched and shown again, because it is a difficult matter to determine what condition one is dealing with. Lesions are not present in the flexures of the elbows, so it is not a typical case of lichen sclerosus of Hallopeau.

A CASE FOR DIAGNOSIS. Presented by DR. DRANT.

M. T., aged 38, presented bilateral and symmetrical lesions on the dorsa of the hands and in some areas on the side of the neck. He first noticed the eruption in July, and at that time there were circinate patches, but they have since become more confluent. During the last few months, little change has

been noted in the lesions. Wassermann test of the blood and of the spinal fluid were negative. The spinal fluid was normal. I thought when I first saw the patient that he had some type of erythema multiforme.

DISCUSSION

DR. LUDY: Although there are none of the usual manifestations in the mouth, etc., the eruption had marked characteristics of pellagra.

DR. SCHAMBERG: The eruption is rather anomalous and difficult to fit in with any specific diagnosis. I thought, as Dr. Ludy did, of the possibility of pellagra, for the patient has a sharply marginated, inflammatory, scaly eruption on the backs of the hands and on the sides of the neck, which are the sites of pellagrous eruption, but the absence of all symptoms of the mouth and tongue and gastro-intestinal symptoms and blebs on the hands eliminate that diagnosis. The appearance of the condition does not fit in with my idea of erythema perstans, because by that conception is meant an erythema multiforme perstans. It is scarcely an eczema, for there is sharp margination of the patches and no itching. It seems to be an eczematoid dermatitis of some kind, possibly related to the acrodermatitis of Herxheimer. On one hand, there is a pale area with an appearance of atrophy, but I would not want to make any definite diagnosis at present.

DR. STOKES: I agree generally with what Dr. Schamberg has said. I think this analyzes the situation now. The picture is settled for me by the condition of the scalp and neck, and I cannot see any reason for excepting the condition on the hands, despite the anomalous appearance, from being diagnosed as the obvious dermatitis of the scalp and neck which I should say belongs in the general classification of eczematoid dermatitis with a seborrheic background. The atrophy is an unusual, interesting feature.

DR. GREENBAUM: I do not see how you can possibly exclude seborrheic dermatitis in view of the condition of the scalp. The man is 71 and is entitled to a certain amount of cutaneous atrophy on account of his age. I also think that the scales themselves should be examined for fungus.

CASE FOR DIAGNOSIS. Presented by DR. CORSON.

A woman, aged 35, seen by Dr. Corson for the first time on the day of presentation, had an eruption on the elbows of six months' duration. There were small, papular lesions which had left small, pitted scars in places. There were some erythematous lesions on the legs which suggested that the eruption might be tuberculous. On the chest there was an erythematous outbreak which she says began three months before presentation, although some of the lesions were apparently of much shorter duration. Her general health, as far as she knew, was good and she had consulted a physician only in regard to the eruption.

DISCUSSION

DR. STOKES: It seems to me that the picture in this case is one which English observers designate "papular urticaria," and which others call "strophulus" in the adult. It is really an erythema multiforme with pruritic papular lesions of the urticarial type.

DR. GREENBAUM: I agree substantially with Dr. Stokes. I would be interested, however, in this particular type — it is rather rare in the adult — to know what relation foods bear to it in the way of cutaneous tests.

DR. SCHAMBERG: I think that the patient bears on the legs the earmarks of the disease that characterizes the group, as Dr. Stokes has said, of erythema multiforme and urticaria; these diseases are all members of the same general class of diseases. She has papular lesions on the arms and on the legs distinct erythematous areas with violaceous centers characteristic of the erythema group. It is a type of case probably due to food. Unfortunately, with the food allergens available, cutaneous tests commonly fail. Our results with cutaneous

tests made by the scarification method have been disappointing over a period of years. I am convinced that years ago, when we made our own liquid allergens, our tests gave better information, although the interpretation was a little more difficult. Often careful study of the diet by the patient himself, particularly if he is intelligent, will throw more light on the case than tests. We are prone to say that tests with certain foods are negative because a proper reaction in the skin does not occur.

MANHATTAN DERMATOLOGICAL SOCIETY

DAVID L. SATENSTEIN, M.D., *Secretary*

Jan. 10, 1928

LUDWIG OULMANN, M.D., *Chairman*

TINEA CIRCINATA OF THE BODY AND SCALP. Presented by DR. ROSEN.

The patient, aged 6 months, from the Post-Graduate Clinic, was presented on account of the type of ringworm infection. The child developed a typical tinea circinata on the trunk and neck about four weeks previous to presentation and about two weeks later similar lesions appeared on the scalp. They were annular with vesicular borders and clearing centers. One microscopic examination was negative for fungi. This was probably due to the local application of an antiseptic ointment. Further investigations were planned.

DISCUSSION

DR. WISE: I accept the diagnosis as presented. The interesting feature about the patient in this case is the circinate type of ringworm on the scalp, as it commonly occurs only on the glabrous skin.

DR. ROSEN: This patient has not been investigated thoroughly. One interesting feature is the age. We do not see this type of eruption often in such a young child. In spite of negative microscopic observations, I feel that the clinical diagnosis is correct.

SYPHILIS IN A CHILD. Presented by DR. ROSEN.

The patient, a boy, aged 5, from the Post-Graduate Clinic presented a profuse invasion of the face, with a papulosquamous eruption. The lesions in some areas coalesced to form patches. There were numerous pigmented spots on the trunk and extremities, both anteriorly and posteriorly, which the mother said were the sites of lesions similar to those on the face. The eruption began about seven months prior to presentation. The child was fairly well nourished, had a generalized adenopathy and a mucous patch on one tonsil. There were no condylomas, nor could any evidence of a primary lesion be found. The Wassermann test was strongly positive with all methods. The Wassermann tests of the father, mother and 2 year old brother were all negative.

DISCUSSION

DR. SATENSTEIN: When I first saw the patient I did not favor the diagnosis of syphilis. I was more inclined to bromoderma tuberosum. On noting the pigmentation of the body marking the sites of previous lesions, bromoderma became questionable and syphilis more probable.

ECZEMA SEBORRHEICUM. Presented by DR. WISE.

The patient, a man, aged 25, married, from the Post-Graduate Clinic, had a disease of four years' duration. He had had four attacks in the past four years. The attack at time of presentation showed a widespread eruption affecting the skin of the entire chest, back and sides of the trunk, and extending down over

the buttocks and thighs. It consisted of numerous isolated and coalescent patches of erythematous, somewhat scaling, distinctly follicular excrescences, associated with light brown pigmentation. The eruption was symmetrically distributed over the trunk and extremities. Itching was severe. The scalp presented only a mild degree of scaling. Vesicular or urticarial lesions were not present, but the eruption exhibited the distribution, pigmentation, tendency to recurrences, and grouping of lesions associated with dermatitis herpetiformis.

DISCUSSION

DR. ELLER: I agree with the diagnosis.

DR. PAROUNAGIAN: I am inclined to the diagnosis of Duhring's disease here because of the duration and grouping. I do not see much seborrheic condition of the scalp.

DR. WALLHAUSER: I agree with the diagnosis.

DR. SATENSTEIN: I favor the opinion expressed by Dr. Parounagian. The chronicity, the pigmentation, the recurrence, the circinate arrangement of the lesions, the pruritus and the distribution would all favor dermatitis herpetiformis rather than seborrhea.

DR. BECHET: I do not think one can be dogmatic about the diagnosis. The points in favor of dermatitis herpetiformis are the intense pruritus, the scratch marks, the tendency to grouping, and remission and exacerbations. Vesiculation is present in a few of the lesions. The definite follicular nature of some of the patches suggest seborrheic eczema; however, the points in favor of dermatitis herpetiformis outweigh those favoring seborrheic eczema.

DR. SCHEER: The patient has a diffuse eruption on the legs. I think this is against the diagnosis of seborrheic dermatitis.

DR. ROSEN: The picture does not conform with any type of seborrheic dermatitis that I am familiar with. The sharply outlined character of some of the lesions, and the tendency to clearing in the center, suggest the possibility of a parasitic nature.

DR. ELLER: I presented a patient similar to this one at the New York Dermatological Society recently. The lesions were limited to the chest and back. It had been present for two years and coincided with the description of the follicular type of seborrheic dermatitis described by the late Dr. Trimble. While the eruption in this patient is more widespread and has more pigmentation, I feel that it is a case of follicular seborrheic eczema.

DR. WISE: I will study this case further and will report on the results at the next meeting.

LUPUS ERYTHEMATOSUS. Presented by DR. OULMANN.

The patient, a woman, presented a butterfly lesion of lupus erythematosus on the face with a duration of eight years. She was treated with gold compound in increasing doses from 0.01 Gm. to 0.1 Gm. After the fourth injection the lesion had almost entirely disappeared, but the patient developed a scaly dermatitis on the hands and feet, which improved under sodium thiosulphate.

DISCUSSION

DR. SATENSTEIN: Have there been any recurrences in the follow-up of these cases? If so, what was the character of the lesions and how did they respond to the therapy?

DR. BECHET: It is too early to be able to state that this remedy permanently cures lupus erythematosus, but I have not, personally, observed recurrences in patients apparently cured. There is no question as to the value of this remedy; it stands preeminently first in the treatment of this hitherto intractable disease.

DR. ROSEN: I have seen recurrences.

DR. WISE: I have likewise seen recurrences.

TUBERCLE OF MIBELLI. Presented by DR. PAROUNAGIAN.

The patient, a man, aged 26, who had contracted syphilis about three years previous to presentation, exhibited a scar at the sulcus. The Wassermann reaction was four plus. He had had some treatment prior to his visit to the office on August 10, 1925, at which time the tubercles of Mibelli were noticed. His father had contracted syphilis thirty-five years previously.

ACNE AGMINATA (CROCKER). Presented by DR. BECHET.

The patient, a white woman, aged 40, had had an eruption on her face for one year, and had been treated during that time for rosacea. The lesions were numerous and spread irregularly over the forehead, cheeks and chin. They consisted of pinhead sized papules and nodules, of a brownish-red color. There were distinct pigmentation and scarring in the center of some of the lesions.

DISCUSSION

DR. ROSEN: I think we are dealing with some form of tuberculosis. The soft appearance of the lesions, the brown-red color, the noninflammatory base and the resistance to treatment, all speak in favor of that diagnosis.

DR. SATENSTEIN: I think it is about time we give up some of those terms and employ the term, superficial disseminated tuberculosis, specifying whether they are papular or nodular in character.

DR. BECHET: In his latest edition, Sutton considers acne agminata, as described by Crocker, synonymous with acnitis, and Tilbury Fox's disseminate follicular lupus. The term acne agminata is also used in Ormsby's last edition. The case completely follows the description given by Ormsby, Sutton and Stelwagon under this group designation.

DERMATITIS VENENATA (CRESOL). Presented by DR. BECHET.

The patient, S. H., a white woman, aged 32, stated that the eruption had been present for three months. Prior to the appearance of the eruption, and during its incidence, she had used douches of a compound solution of cresol, and daily wiped off the toilet seat with a strong mixture of this solution. The eruption was dusky red, with much dryness of the skin, and extremely sharply outlined borders. It covered the buttocks and posterior thighs; there were, however, a few spots on the front of the thighs near the groin.

DISCUSSION

DR. WISE: I offer the diagnosis of idiopathic atrophy of the skin. There is a sharply limited border at the back of the lesion of the thighs; the eruption is not associated with much itching, and I think that as time goes on she will show a characteristic shriveling of the skin in the affected areas.

DR. SCHEER: I agree entirely with Dr. Wise. One additional point in the syndrome is the color which is somewhat violaceous, as is seen in acrodermatitis atrophicans.

DR. BECHET: I must say that Dr. Wise's suggestion did not occur to me for the reason that a definite history of taking douches in a tub exists, and the lesions occur just where one would expect the solution to reach. It is perfectly possible to have that color and appearance in an ordinary dermatitis from the long continued use of cresol. I will present the patient again at the next meeting.

NOTE.—There has been great improvement with the cessation of the use of the antiseptic and the application of a bland salve.

A CASE FOR DIAGNOSIS (CIRCINATE SYPHILODERM). Presented by DR. PAROUNAGIAN.

The patient, A. A., aged 31, an East African, was referred for diagnosis on Jan. 9, 1928. His history was negative as to venereal infections. The dura-

tion of his skin eruption was said to have been one month. It was limited to the trunk only. The lesions were circinate, scaly, and of various sizes, and with sharp borders consisting of elevated follicles. There was severe pruritus. There was a lymphatic swelling about the size of a walnut on the right side of the neck above the clavicle of three months' duration. It was not painful. This had been considered to be a gumma. A Wassermann examination on the day of admission was negative, and a second specimen was taken on the day of presentation.

DISCUSSION

DR. GILMOUR: I think the circinate lesions are those of secondary syphilis.

DR. SATENSTEIN: I cannot make a positive diagnosis. I do not see anything that suggests either syphilis or lichen scrofulosorum. The clinical picture suggests some form of fungus infection. The case should be further studied. The soft mass in the neck suggests broken-down tuberculous glands.

DR. BECHET: I think the remarks made by Dr. Satenstein are well taken. I suggest that Dr. Parounagian look into the possibility of a mycotic infection in reference to the scaly circinate lesions on the man's body.

DR. SCHEER: There are some pinhead sized papules in some of the circinate patches on the body, and I think they would suggest the diagnosis of lichen scrofulosorum.

DR. WISE: I do not agree with the diagnosis of syphilis and believe the eruption to be lichen scrofulosorum. A similar eruption is illustrated in a monologue in Riecke's textbook, and another in a photograph of a negro patient in Sutton's textbook.

DR. MOUNT: I favor the diagnosis of lichen scrofulosorum. The enlarged soft gland in the neck and the character of the eruption speak for that diagnosis.

DR. PAROUNAGIAN: Regarding tuberculosis in this patient, the case was referred to us from the tuberculosis department and they reported that the lungs were absolutely negative for tuberculosis. I admit that we have no signs of syphilis, as far as chancre, etc., are concerned, but the circinate arrangement of the older lesions, with pigmented areas and the coexistence of the glandular swelling of the neck, is the reason I regarded it as tertiary syphilis. The suggestion of lichen scrofulosorum is a good one, and I am willing to accept it.

SYPHILIS AND TINEA VESICOLOR. Presented by DR. KINGSBURY.

The patient, J. K., a man, aged 23, was of clinical interest owing to the fact that a general maculopapular syphilide was obscured by large patches of extensive tinea vesicolor.

DETROIT DERMATOLOGICAL SOCIETY

H. J. PARKHURST, M.D., *Reporter*

Regular Meeting, Jan. 17, 1928

H. S. BARTHOLOMEW, M.D., *Presiding*

HYPERTROPHIC MELANOTIC LYMPHANGIOMA. Presented by DR. R. C. JAMIESON.

S. S., a man, aged 57, had a brownish verrucous lesion on the scalp over the right ear, 2.5 cm. in diameter, and of four months' duration. The borders appeared to be slightly inflamed, and there was a slight tendency to enlargement. There were no subjective symptoms. The diagnosis had been made by a biopsy examination.

LUPUS ERYTHEMATOSUS AND SYPHILIS. Presented by DR. E. C. TROXELL.

A. F., a housewife, aged 48, had always been in good general health. She had one living child, aged 27; six miscarriages had followed this first normal pregnancy. The Wassermann reactions during the four years before presentation had been strongly positive, and antisyphilitic treatment had been administered.

Five years previously, the patient had first noticed a scaling erythematous patch behind the right ear. This patch had increased slowly in size until one year before presentation, when many similar patches of various sizes and shapes appeared on the face, neck and scalp. The lesions were enlarging rapidly. A question had been raised concerning the advisability of gold compound therapy in this case.

DISCUSSION

DR. WILE: A gold compound may be administered in this case, but should be started in small doses and increased gradually.

DR. PARKHURST: It is noteworthy that the lupus erythematosus has not undergone involution under the administration of neoarsphenamine.

LINGUAL GUMMA ARSPHENAMINE DERMATITIS (?). Presented by DR. R. H. STEVENS.

Mrs. G. R. E., aged 38, had first noticed glossitis four years before presentation, following a panhysterectomy. As then presented, the tongue was beefy red and deeply furrowed with a long, deep central ulceration. A course of eight injections of neoarsphenamine and six of bismuth salicylate was given, and the lesion healed. One week after the last injection, a severe dermatitis of generalized distribution appeared; it was accompanied by itching and burning sensations. This eruption underwent gradual involution, but persisted on the hands and legs and about the scalp and eyes. The urine was normal.

GINGIVAL ULCER; SEBORRHEIC DERMATITIS. Presented by DR. R. H. STEVENS.

Mrs., E. G., aged 60, born in Germany, had been in good health, but had complained of itching of the scalp for two years before presentation. In November, 1926, a punched-out ulcer, 1 cm. in diameter, had appeared in the upper gingivolabial region; it was without tenderness or induration. As the Wassermann and Kahn reactions were strongly positive, courses of neoarsphenamine and bismuth salicylate were administered. In December, 1926, there was some dermatitis, apparently seborrheic, over the occiput. This reappeared in November, 1927, and in January, 1928, involved the entire scalp and ears, and finally the knees and one elbow. The eruption was yellowish, crusted and pruritic. There was a question as to whether the antisyphilitic treatment had any bearing on the occurrence of this eruption.

DISCUSSION

DR. SHAFFER: The first case presents the exfoliative type of arsenical dermatitis which is due to an idiosyncrasy, and which may appear after a single injection or after several courses of treatment. In the second case, I doubt whether arsenic is much of a factor, but would suggest treatment with sodium thiosulphate.

DR. SCHILLER: I have not seen any eruptions due to bismuth.

DR. GRUHZIT: In two cases, I saw a morbilliform eruption after injections of bismuth.

LICHENOID PARAPSORIASIS. Presented by DR. JAMIESON.

J. S., aged 35, a housewife, presented a widespread eruption of small, dry, shiny and slightly scaly maculopapules, involving the trunk, neck, scalp and

legs. The eruption had begun on the chest and extended gradually. There was severe pruritus at times. During the preceding week, there had been an acute dermatitis of the neck and chest, superimposed on the original lesions.

DISCUSSION

DR. BIDDLE: The desquamation suggests psoriasis rather than parapsoriasis.

DR. JAMIESON: Many of these lesions resemble psoriasis, but some do not.

MULTIPLE EPITHELIOMAS. Presented by DR. C. K. HASLEY.

W. S., a man, aged 65, presented many irregularly outlined, superficial scaling, erythematous patches, which varied in size from that of a pea to that of a dollar, and which were pruritic at times. The condition had been present for twenty years, and the trunk was the chief site of involvement. Histologic diagnoses of Paget's disease and basal cell epithelioma had been made. Some of the lesions had disappeared under roentgen-ray treatment. One especially had recurred, with ulceration and secondary infection.

DISCUSSION

DR. JAMIESON: I would suggest treatment by electrodesiccation.

DR. STEVENS: Roentgenotherapy has already been used in this case, and more might be ineffective. Desiccation would seem advisable.

DR. WILE: These lesions are not as innocent as they look, and should be treated radically.

LYMPHANGIOMA CIRCUMSCRIPTUM AND NEVUS PILOSUS. Presented by DR. SCHILLER and DR. SCHLEGELMILCH.

C. D., a schoolgirl, aged 15, was presented to show the good results following the removal, by electrodesiccation, of a large orange-sized lymphangioma at the inner side of the elbow. The tumor had been removed under local anesthesia at one sitting. Many large and small brown nevi were scattered over the body.

ATROPHY OF THE FATTY LAYER OF THE SKIN (GILCHRIST AND KETRON); LUPUS ERYTHEMATOSUS. Presented by DR. A. E. SCHILLER.

Mrs. B. S. a housewife, aged 43, born in the United States, presented areas of apparent loss of fat underlying the skin of the cheeks, arms, forearms and back. These areas were numerous and varied in size from that of a large coin to that of a palm. The overlying skin seemed thin in some patches and normal in others. The condition had been present for eleven years, and at one time a diagnosis of morphea had been made at the Mayo clinic.

There were a number of erythematous, scaling patches with follicular plugs, scattered over the nose, cheeks, ears, scalp and fingers. These were of four months' duration. The routine laboratory and serologic observations were negative.

DISCUSSION

DR. PARKHURST: This is apparently a case of atrophy of the fatty layer of the skin, as described by Gilchrist and Ketron. A similar case, in which the anterior surface of the thigh was involved, was presented by Dr. Cole before the Cleveland Dermatological Society five or six years ago.

PITYRIASIS RUBRA PILARIS. Presented by DR. SCHILLER and DR. SCHLEGELMILCH.

B. B., a boy, presented an eruption of scaling, erythematous patches on the trunk, arms and legs, of seven months' duration. These varied in size from that

of a medium sized coin to that of a palm. The patches were sharply outlined, and consisted of small follicular papules. They were denuded of lanugo hair. The eruption was progressing. No mycelia were found in the scrapings.

DISCUSSION

DR. WILE: In the girl the lesions are follicular and like those of lichen scrofulosorum. The boy has an early pityriasis rubra pilaris. Most of us have had an erroneous conception of pityriasis rubra pilaris and associate it with widespread exfoliation and plugs on the dorsa of the fingers. But the condition begins with patches resembling seborrhea or psoriasis, as in this boy. The girl's condition may turn out to be pityriasis rubra pilaris.

DR. PARKHURST: In the boy the borders of the patches were elevated; in the girl they were not, and were made up of isolated follicular papules, as seen in lichen scrofulosorum. I would suggest that cod liver oil and actinotherapy be tried in the girl's case.

Directory of Dermatologic Societies

NATIONAL DERMATOLOGIC SOCIETIES*

AMERICAN DERMATOLOGICAL ASSOCIATION

Joseph Grindon, President, 4500 Olive St., St. Louis.
C. Guy Lane, Secretary, 416 Marlborough St., Boston.

SECTION ON DERMATOLOGY AND SYPHILOLOGY, SCIENTIFIC ASSEMBLY, AMERICAN MEDICAL ASSOCIATION

Jay Frank Schamberg, Chairman, 1402 Spruce St., Philadelphia.
William H. Guy, Secretary, Jenkins Arcade, Pittsburgh.

BRITISH ASSOCIATION OF DERMATOLOGY AND SYPHILOLOGY (CANADIAN BRANCH)

D. King Smith, President, 122 Bloor St. West, Toronto.
E. J. Trow, Secretary, 122 Bloor St. West, Toronto.

LOCAL DERMATOLOGIC SOCIETIES

DERMATOLOGIC SECTION, LOS ANGELES COUNTY MEDICAL ASSOCIATION

Irving R. Bancroft, Chairman, 412 W. 6th St., Los Angeles.
Louis F. X. Wilhelm, 1401 S. Hope St., Los Angeles.

SAN FRANCISCO DERMATOLOGICAL SOCIETY

Harry E. Alderson, Chairman, 490 Post St., San Francisco.
Ernest K. Stratton, Secretary and Treasurer, 490 Post St., San Francisco.

ATLANTA DERMATOLOGICAL SOCIETY

Cosby Swanson, President, 436 Peachtree St., Atlanta, Ga.
Howard Hailey, Secretary, Candler Bldg., Atlanta, Ga.

CHICAGO DERMATOLOGICAL SOCIETY

F. E. Senear, President, 25 E. Washington St., Chicago.
E. A. Oliver, Secretary, 25 E. Washington St., Chicago.

LOUISIANA DERMATOLOGICAL SOCIETY

Ralph Hopkins, President, 124 Baronne St., New Orleans.
Thomas A. Maxwell, Secretary-Treasurer, 1119 Union Indemnity Bldg., New Orleans.

BALTIMORE AND WASHINGTON DERMATOLOGICAL SOCIETY

C. Augustus Simpson, President, 1610, 20th St., N. W., Washington, D. C.
Leon Ginsburg, Secretary, 1800 N. Charles St., Baltimore.

---

* Secretaries of dermatologic societies are requested to furnish the information necessary for the editor to make this list complete and to keep it up to date.

DETROIT DERMATOLOGICAL SOCIETY

George Van Rhee, President, 10 Peterboro St., Detroit.
Ralph A. Perkins, Secretary, 276 Erskine St., Detroit.

MINNESOTA DERMATOLOGICAL SOCIETY

Henry E. Michelson, President, Donaldson Bldg., Minneapolis.
D. D. Turnacliff, Secretary, Yeates Bldg., Minneapolis.

ST. LOUIS DERMATOLOGICAL SOCIETY

Robert H. Davis, President, Missouri Bldg., St. Louis.
Norman Tobias, Secretary, Missouri Bldg., St. Louis.

NEW ENGLAND DERMATOLOGICAL SOCIETY

C. Guy Lane, President, 416 Marlborough St., Boston.
Arthur M. Greenwood, Secretary, 416 Marlborough St., Boston.

BRONX DERMATOLOGICAL SOCIETY

Louis Chargin, Chairman, 116 W. 87th St., New York.
Raphael Breakstone, Secretary-Treasurer, 783 Beck St., New York.

BROOKLYN DERMATOLOGICAL SOCIETY

Louis Chargin, President, 47 Halsey St., Brooklyn.
E. Almore Gauvain, Secretary-Treasurer, 47 Halsey St., Brooklyn.

MANHATTAN DERMATOLOGICAL SOCIETY

Mihran B. Parounagian, Chairman, 126 E. 39th St., New York.
David L. Satenstein, Secretary, 116 W. 58th St., New York.

SECTION ON DERMATOLOGY AND SYPHILIS, NEW YORK ACADEMY OF MEDICINE

Edward R. Maloney, Chairman, 853 7th Ave., New York.
Joseph Jordan Eller, Secretary, 100 W. 59th St., New York.

NEW YORK DERMATOLOGICAL SOCIETY

Howard Fox, President, 114 E. 54th St., New York.
Paul E. Bechet, Secretary, 30 E. 40th St., New York.

SECTION ON DERMATOLOGY AND SYPHILOLOGY, MEDICAL SOCIETY OF THE STATE OF NEW YORK

Howard Fox, Chairman, 144 E. 54th St., New York.
Earl D. Osborne, Secretary, 471 Delaware Ave., Buffalo.

CINCINNATI DERMATOLOGICAL SOCIETY

E. B. Tauber, President, 19 W. 7th St., Cincinnati.
H. L. Claassen, Secretary, 4 W. 7th St., Cincinnati.

CLEVELAND DERMATOLOGICAL SOCIETY

C. G. LaRocco, President, Schofield Bldg., Cleveland.
James R. Driver, Secretary, Hanna Bldg., Cleveland.

PHILADELPHIA DERMATOLOGICAL SOCIETY

Sigmund S. Greenbaum, President, 1714 Pine St., Philadelphia.
Carroll S. Wright, Secretary, 1402 Spruce St., Philadelphia.

PITTSBURGH DERMATOLOGICAL SOCIETY

George J. Busman, Secretary, Union Trust Bldg., Pittsburgh.
Lawrence G. Beinhauer, President, Jenkins Arcade, Pittsburgh.

Index to Current Literature

DERMATOLOGY

Actinomycosis of Jaw. W. N. Nelson, Nebraska M. J. **13**:142 (April) 1928.
Actinomycosis: Two Cases. G. D. Brand, U. S. Vet. Bur. M. Bull. **4**:335 (April) 1928.
Acute Dermatitis from Leather (Shoe) Dye. Suchier, München. med. Wchnschr. **75**:570 (March 30) 1928.
American Leprosariums. J. I. Chala and F. De P. Barrera, Rev. med.-quir. de los hospitales **3**:66 (Oct.) 1927.
Association of Susceptibility to Sarlet Fever and Acute Tonsillitis. A. L. Bloomfield, California & West. Med. **28**:477 (April) 1928.
Asthma and Mites. H. Dekker, München. med. Wchnschr. **75**:515 (March 23) 1928.

Blood Researches in Barlow's Disease and in Experimental Scurvy. G. Carbonara, Clin. pediat. **10**:98 (Feb.) 1928.
Blood Urea in Scarlet Fever in Tonsillitis. F. Wahlig, Klin. Wchnschr. **7**:542 (March 18) 1928.
Border Zone Between Hyperplastic and Neoplastic Processes of Cutaneous Epithelium. F. D. Weidman, Am. J. M. Sc. **175**:479 (April) 1928.

Case of Periarteritis Nodosa Associated with Familial Neurofibromatosis. J. E. W. Brocher and E. Frommel, Ann. de méd. **23**:265 (March) 1928.
Cholesteremia in Leprosy. J. M. Gomes, C. A. Pereira Leitão, F.° and A. Wancolle, Rev. di biol. e hyg. **1**:39, 1927.
Contracture of Axilla from Burns: Three Cases. H. T. Jones, Minnesota Med. **11**:210 (April) 1928.
Convalescent and Antitoxic Serums in Scarlet Fever. J. E. Gordon, B. B. Bernbaum and L. C. Sheffield, J. A. M. A. **90**:1604 (May 19) 1928.
Creeping Eruption. G. F. White and W. E. Dove, J. A. M. A. **90**:1701 (May 26) 1928.
Cutaneous Spirochetosis Due to Treponema Cuniculi in British Rabbits. D. K. Adams, D. F. Cappell and J. A. W. McCluskie, J. Path. & Bact. **31**:157 (April) 1928.
Cytologic Changes in Measles. B. Lipschütz, Wien. klin. Wchnschr. **41**:365 (March 15) 1928.

Dermatitis Medicamentosa. C. B. Campbell, Virginia M. Monthly **55**:46 (April) 1928.
Dermatophytosis of Extremities with Peripheral Occlusive Endarteritis: Preliminary Report of Clinical and Therapeutic Observations. Cleveland White, J. A. M. A. **90**:1865 (June 9) 1928.
Dermoid Cysts Above and Below Diaphragm of Mouth. J. V. Meigs, New England J. Med. **198**:282 (March 29) 1928.
Differential Diagnosis of Acute Exanthems. J. Kuiper, Nederl. Tijdschr. v. Geneesk. **72**:1182 (March 10) 1928.
Diphtheria of the Penis. J. Fredric Prinzing, J. A. M. A. **90**:1620 (May 19) 1928.
Drug Eruptions. R. W. Fowlkes, Virginia M. Monthly **55**:28 (April) 1928.

Eczema in Infants. W. B. Richards, Minnesota Med. **11**:229 (April) 1928.
Endemic, Manifest and Latent Scurvy; Diagnosis of Latent Scurvy. H. Öhnell, Acta med. Scandinav. **68**:176 (March 15) 1928.
Endometrial Tumors in Abdominal Scars. Marion Douglass, J. A. M. A. **90**:1853 (June 9) 1928.
Epidermophytosis. A. Da Matta, Sciencia méd. **6**:1 (Jan.) 1928.
Erythema Nodosum and Infectious Diseases. M. Arborelius, Acta med. Scandinav. **68**:151 (March 15) 1928.
Etiology and Prophylaxis of Measles; Reply to Caronia. Bürgers, München. med. Wchnschr. **75**:481 (March 16) 1928.

Hebra's Water Bed in Treatment of Exanthems. Wien. klin. Wchnschr. **41**:401 (March 22) 1928.

Hematology of Measles. F. Redlich and Z. Maternowska, Monatschr. f. Kinderh. **38**:178 (Jan.-Feb.) 1928.

Herpes Zoster: Chickenpox. M. Solberg, Norsk. Mag. f. Laegevidensk. **89**:257 (March) 1928.

Histologic Study of Thyroid of Guinea-Pig in Experimental Scurvy. K. D. Harris and E. A. Smith, Am. J. Physiol. **84**:599 (April 1) 1928.

Increasing Erythema Production from Ultraviolet Rays by Means of Soft Soap. H. von Baeyer and O. Dittmar, München. med. Wchnschr. **75**:428 (March 9) 1928.

Instrument for Inverted or Retracted Nipples. L. Bivings, Georgia M. A. J. **17**:120 (March) 1928.

Intracutaneous Reaction in Climatic Bubo. O. Fischer, Arch. f. Schiffs- u. Tropen-Hyg. **32**:91 (Feb.) 1928.

Intradermal Reaction in Experimental Trichiniasis. G. W. Bachman, J. Prev. Med. **2**:169 (March) 1928.

Intradermal Salt Solution Test in Tuberculosis. A. Feldman, Arch. Int. Med. **41**:549 (April) 1928.

Kahn, Micro-Kahn and Wassermann Tests in Leprosy. S. D. S. Greval, Indian J. M. Research **15**:683 (Jan.) 1928.

Light and Skin Diseases. G. Stümpke, Strahlentherapie **28**:325, 1928.

Local Terminology of Certain Manifestations of Yaws. O. Schöbl, Philippine J. Sc. **35**:127 (Feb.) 1928.

Mild Leprosy. G. M. Caballero, Vida nueva **21**:1 (Jan. 15) 1928.

Modification of Scarlatinal Toxin by Formaldehyde. J. Smith, Brit. J. Exper. Path. **9**:49 (April) 1928.

Molluscum Contagiosum. H. A. Kiefer, California & West. Med. **28**:490 (April) 1928.

National Leper Home (U. S. Marine Hospital), Carville, La. O. E. Denney, Pub. Health Rep. **43**:810 (April 6) 1928.

Occurrence of Hypersensitiveness or Allergy in Five Generations of One Family. A. E. Smith, Arch. Int. Med. **41**:472 (April) 1928.

Passive Transfer of Skin Reaction to Horse Serum. J. A. Clarke, Jr., and May G. Gallagher, J. Immunol. **15**:103 (March) 1928.

Pellagra-Like Lesions Associated with Deficiency of Vitamin B_2 in Rat. G. M. Findlay, J. Path. & Bact. **31**:353 (April) 1928.

Pemphigus Confined to Mucous Membranes. H. Hailey, South. M. J. **21**:308 (April) 1928.

Poisoning from Fungi. F. Castellani, Gazz. d. osp. **49**:255 (March 4) 1928.

Production of Skin Necrosis by Certain Autolysates of Pneumococcus (Types I and II). J. T. Parker, J. Exper. Med. **47**:531 (April) 1928.

Purpura Producing Substance in Pneumococcus and Heritable Susceptibility of Mice. W. Mair, J. Path. & Bact. **31**:215 (April) 1928.

Radium Treatment of Skin Diseases. L. Kumer, Wien. klin. Wchnschr. **41**:444 (March 29) 1928.

Rat Leprosy: Record of Experimental Work. E. Muir and J. M. Henderson, Indian J. M. Research **15**:807 (Jan.) 1928.

Scleroderma of the New-Born. U. de Gironcoli, Riv. di clin. pediat. **26**:165 (March 25) 1928.

Scurvy with Reference Especially to Adults. George C. Shattuck, J. A. M. A. **90**:1861 (June 9) 1928.

Skin Affections of External Ear. L. Savitt, Arch. Physical Therapy **9**:155 (April) 1928.

Skin Changes in Chronic Saturnine Nephritis. L. V. Blina, Med. del lavaro **19**:56 (Feb. 29) 1928.

Skin Disinfection for Combined Surgery and Radiotherapy. A. Simons, Deutsche med. Wchnschr. **54**:474 (March 23) 1928.

Skin Pigmentation: Color Top Method of Recording. T. W. Todd, B. Blackwood and H. Beecher, Am. J. Phys. Anthrop. **11**:187 (Jan.-March) 1928.
Studies in Scarlet Fever: Skin Blanching by Commercial Antitoxins. J. A. Toomey, Am. J. Dis. Child. **35**:607 (April) 1928.

Three Cases of Leprosy in One Mexican Family. R. J. White, South. M. J. **21**:311 (April) 1928.
Treatment for Split Finger-Nails. W. W. Carter, J. A. M. A. **90**:1619 (May 19) 1928.
Treatment of Lupus Erythematosus. B. Sáenz, Vida nueva **21**:75 (Feb. 15) 1928.
Treatment of Nevi. J. V. Klauder, J. A. M. A. **90**:1763 (June 2) 1928.
Treatment of Whooping Cough with Smallpox Vaccine. K. D. Graves, Virginia M. Monthly **55**:15 (April) 1928.
Tuberculin Skin Tests. P. Rueda, Santa-Fe méd. **2**:259, 1927.

Ultraviolet Radiation in Treatment of Pemphigus Neonatorum. A. W. Gregorson, Lancet **1**:703 (April 7) 1928.
Umbilical Displacement and Deviation of Linea Alba. F. Co Tui and Jacob Meyer, J. A. M. A. **90**:1779 (June 2) 1928.

What Can We Do About Measles? G. C. Ruhland and A. C. Silverman, Am. J. Pub. Health **18**:131 (Feb.) 1928.

SYPHILOLOGY

Bismuth Treatment of Syphilis. S. Nicolau and M. Blumental, Ann. d. mal. vén. **23**:161 (March) 1928.

Colloidal Gold Solution: Preparation and Titration with Permanent H Ion Concentration Standards. V. Christina and C. S. Green, J. Lab. & Clin. Med. **13**:678 (April) 1928.
Congenital Cerebrospinal Syphilis. A. Gareiso, Rev. méd. latino-am. **13**:429 (Dec.) 1927.
Congenital Syphilis and Poliomyelitis. Alterthum, Deutsche med. Wchnschr. **54**:522 (March 30) 1928.

Diagnosis of Syphilis in Mother and Child. E. Philipp, Zentralbl. f. Gynäk. **52**:416 (Feb. 18) 1928.

Experiments with Syphilis Immune Serums. H. Reiter, Deutsche med. Wchnschr. **54**:519 (March 30) 1928.

Febrile Reactions Following Neoarsphenamine Injections. Milian, Bull. et mém. Soc. méd. d. hôp. de Paris **52**:437 (March 15) 1928.

"Immunity in Syphilis." F. Klopstock, Klin. Wchnschr. **7**:600 (March 25) 1928.
Internal Hydrocephalus Due to Congenital Syphilis. J. Yampolsky, South. M. J. **21**:274 (April) 1928.

Kahn and Wassermann Tests. M. Suquet, Rev. de méd. y cir. de la Habana **32**:980 (Dec. 20) 1928.
Kahn Precipitation Test in Syphilis. R. L. Hickman, J. Oklahoma M. A. **21**:76 (April) 1928.

Malaria Treatment of Diseases of Nervous System. D. Paulian, Marseille-méd. **65**:216 (Feb. 15) 1928.
Malaria Treatment of Progressive Paralysis. A. Vallejo Nágera and R. González Pinto, Deutsche med. Wchnschr. **54**:521 (March 30) 1928.
Meinicke and Garriga Tests in Syphilis. J. Souto Beavis and F. Beato González, Progressos de la clínica **36**:131 (Feb.) 1928.

Pleuropulmonary Sclerosis in a Syphilitic. A. Armand Ugón, Arch. latino-am. de pediat. **22**:51 (Jan.) 1928.

Quartan Malaria Treatment of Metasyphilis. W. Kirschbaum, München. med. Wchnschr. **75**:469 (March 16) 1928.

Recklinghausen's Disease on Syphilitic Soil. J. Fernández de la Portilla and F. Dauden, Med. ibera **1**:229 (March 3) 1928.

Sedimentation of Erythrocytes in Congenital Syphilis. S. Weiss, Nourrisson **16**:102 (March) 1928.

Sodium Thiosulphate in Treatment of Syphilis. J. W. Kimbrough, U. S. Nav. M. Bull. **26**:344 (April) 1928.

Studies in Syphilis in Rabbits: Rabbits Naturally Positive to Wassermann and Kahn Tests. S. D. S. Greval, Indian J. M. Research **15**:681 (Jan.) 1928.

Syphilis of Portio Uterinus. H. Hinselmann, Zentralbl. f. Gynäk. **52**:412 (Feb. 18) 1928.

Syphilitic Orchiepididymitis. J. E. Marcel, Ann. d. mal. vén. **23**:173 (March) 1928.

Treatment of Syphilis of Central Nervous System by Intralumbar Protein Injections. K. Mori, München. med. Wchnschr. **75**:436 (March 9) 1928.

Two Years' Experience with Malarial Treatment of General Paralysis. M. A. Bahr and W. L. Bruetsch, Am. J. Psychiat. **7**:715 (March) 1928.

Use of Tryparsamide in Neurosyphilis. D. C. Burkes, U. S. Vet. Bur. M. Bull. **4**:322 (April) 1928.

Value of Bismuth Therapy in Syphilis. C. Levaditi and L. Fournier, Lancet **1**:692 (April 7) 1928.

Variant of the Wassermann Test. E. Marriotti, Riforma med. **44**:246 (March 5) 1928.

Xanthomas in Congenital Syphilis. V. Bertola and R. Garzón, Prensa méd. argent. **14**:909 (Feb. 10) 1928.

THE ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY is [illegible] American Medical Association to [illegible] knowledge in these [illegible] of medicine.

Manuscripts for publication, books for review, and [illegible] to the editorial management [illegible] Chief, 7 West Madison [illegible] torial Board. Communications [illegible] be addressed, ARCHIVES OF [illegible] Association, 535 North [illegible], Chicago.

Articles are accepted for publication on condition that [illegible] solely to the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY. [illegible] typewritten, preferably [illegible], and the original copy [illegible]. Zinc etchings and halftone [illegible] illustrations will be [illegible] when the original illustrations warrant.

Footnotes and bibliographies should conform to the style [illegible] Cumulative Index Medicus, published by the American Medical [illegible] requires, in order given: author's name, title of article, name [illegible] volume, page, month — date, and if weekly — and year. [illegible] abbreviations for standard medical journals, suggested with a list [illegible] of the A. M. A. publications, appears in The Art and Practice [illegible] ing, a comprehensive book on the preparation of medical [illegible] by the American Medical Association. Price, $1.50.

Matter appearing in the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY is covered by copyright, but as a rule no objection will be made to [illegible] in reputable medical journals if proper credit is given. [illegible] duction for commercial purposes of articles appearing in the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY, or in any of the other publications issued by the Association, will not be permitted.

Authors will receive one hundred reprints free; additional reprints may be obtained at cost.

The ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY is published monthly. Annual subscription price (two volumes): Domestic, $6.00; Canadian, $6.30; foreign, $6.75, including postage. Single copies, 85 cents.

Checks, etc., should be made payable to the AMERICAN MEDICAL ASSOCIATION.

OTHER PERIODICAL PUBLICATIONS

of the American Medical Association

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION—[illegible] medical sciences and matters of general medical interest. [illegible] price (two volumes): Domestic, $8.00; Canadian, $8.30; foreign, $8.75. Single copies, 85 cents.

ARCHIVES OF INTERNAL MEDICINE—Monthly. Devoted to the [illegible] original clinical and laboratory investigations in internal medicine. [illegible] subscription price (two volumes): Domestic, $6.00; Canadian, $6.30; foreign, $6.75. Single copies, 75 cents.

ARCHIVES OF NEUROLOGY AND PSYCHIATRY—Monthly. A [illegible] tion of original articles on neurology and mental diseases, [illegible] domestic literature, book reviews, society transactions, etc. [illegible] price (two volumes): Domestic, $6.00; Canadian, $6.30; foreign, $6.75. Single copies, 75 cents.

AMERICAN JOURNAL OF DISEASES OF CHILDREN—[illegible] a medical science and as a social problem. It includes [illegible] based on recent pediatric literature, abstracts from foreign [illegible] reviews, society transactions, etc. Illustrated. Annual [illegible] Domestic, $6.00; Canadian, $6.30; foreign, $6.75. Single copies, 85 cents.

ARCHIVES OF SURGERY—Monthly. Devoted largely to the [illegible] phases of surgery, with notable features on orthopedic and [illegible] Annual subscription price (two volumes): Domestic, $8.00; Canadian, $8.40; foreign, $8.75. Single copies, 85 cents.

ARCHIVES OF OTOLARYNGOLOGY—Monthly. A medium for the [illegible] of original articles on diseases of the ear, nose, throat, with abstracts from the literature, book reviews, the transactions of learned societies, etc. [illegible] price (two volumes): Domestic, $6.00; Canadian, $6.30; foreign, $6.75. Single copies, 75 cents.

ARCHIVES OF PATHOLOGY—Monthly. A periodical devoted to [illegible] original contributions in the field of pathology, with abstracts from the literature, book reviews, the transactions of learned societies, etc. [illegible] price (two volumes): Domestic, $6.00; Canadian, $6.30; foreign, $6.75. Single copies, 75 cents.

QUARTERLY CUMULATIVE INDEX MEDICUS—Quarterly. An [illegible] author index to the world-wide periodical literature of medicine. Issued four times a year. Second and fourth volumes become the permanent reference. Subscription price, calendar year: Domestic, $6.00; Canadian, $6.30; foreign, $6.75.

AMERICAN MEDICAL ASSOCIATION

535 North Dearborn St. CHICAGO

CONTENTS